FLIGHT

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MAGAZINE

BEECHCRAFT B50 TWIN-BONANZAS

Guided missiles and swept-wing jets, symbols of military aviation's modern-day might, set the pace for the U. S. Navy's air arm. Chance Vought's versatile F7U-3 Cutlass fighters typify the new strength of carrier-based aircraft. They can function as fighters, interceptors or attack planes, supplementing cannon fire-power with rockets, guided missiles and bombs.

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DALLAS, TEXAS

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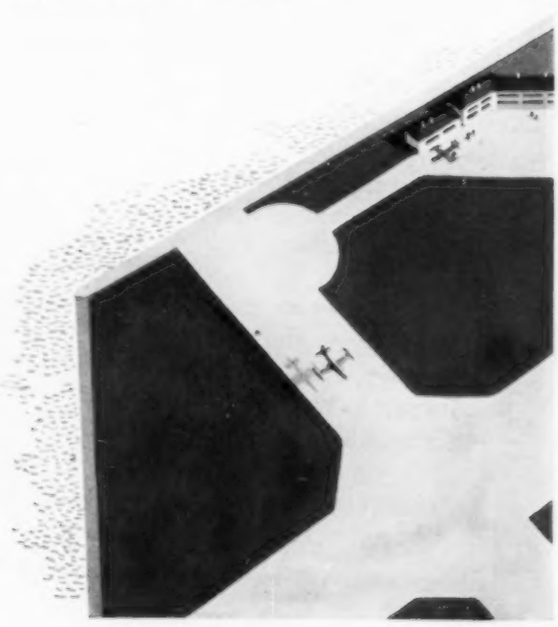
It gives maximum training potential, even down into lower phases of training now requiring propeller-driven planes.

Lockheed has engineered into this trainer aircraft a wide variety of new safety features, including stall slats and an elevated tail with greatly increased surfaces. It is beyond a doubt *the safest jet airplane ever built!*

For easier training of even better jet pilots, this airplane has:—an unrestricted canopy . . . a wrap-around single windshield . . . rearranged and redesigned seats, including a telescoped ejection seat . . . and a greatly simplified cockpit and instrument panel—all providing the optimum arrangement for tandem training.



LOCKHEED

AIRCRAFT CORP., BURBANK, CALIF. AND MARIETTA, GA.

Look to Lockheed for Leadership

Phillips 66
PRESENTS

MILESTONES IN AVIATION

How Lieut. Towers'* Thrilling Adventure Inspired the *Safety Belt*

*ADMIRAL JOHN H. TOWERS, U. S. N. (RET.)

On June 20, 1913, Navy Lt. John H. Towers was flying over Chesapeake Bay in a Wright biplane, converted into a seaplane by adding a Curtiss pontoon. A sudden gust struck the plane, and he was thrown from his seat. As the plane plunged toward the water, 1600 feet below, the quick thinking Towers grasped a wing strut and rode the plane down.

The plane disintegrated in the choppy water. Badly injured, Lt. Towers seized a section of the broken pontoon, to which he lashed himself with a handkerchief and floated until he was rescued. Later, he suggested to Glenn Curtiss that all planes be equipped with seat safety belts—an idea destined to save many lives, and another milestone in aviation progress.

A pioneer in petroleum research for the development of more powerful, more efficient aviation fuels, Phillips Petroleum Company now produces tremendous quantities of 115/145 grade aviation gasoline for military and commercial use. And today, Phillips is ready with improved fuels for the latest designs in turbo-props and jets.

Operators know they can always depend on high-quality Phillips *66* aviation products.

Backed by its long record of success in supplying the needs of the aviation industry, Phillips will continue to play its part in meeting the newest demands for aviation fuels and lubricants.

AVIATION DIVISION
PHILLIPS PETROLEUM COMPANY
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Phillips 66

AVIATION PRODUCTS

AIR Report
Significant Trends and News

FIRST FLIGHT OF CESSNA T-37 JET TRAINER will be made in August. Cessna has received an Air Force order for limited production of the light jet trainer . . . **FIRST DELIVERY OF THE NEW TWIN-ENGINE CESSNA 310** went last month to Distributor Mel Walston, East Alton, Ill. The Cessna 310 demonstration tour is continuing, having recently been in Mexico.

CAA APPROVED TYPE CERTIFICATE for the new Super 18 Beech was expected at the end of July with first delivery going to Atlantic Aviation Service, Wilmington, Delaware. First photos of the modernized Beech Twin, powered by two Pratt & Whitney Wasp Juniors, appear in this issue on pages 16-17.

TOOLING FOR PRODUCTION OF 50 CAMAIR 480 TWIN NAVION CONVERSIONS is being made at Camair Division, Cameron Iron Works, Galveston, Tex. Delivery of first production model is expected in September. Company is now accepting deposits on firm orders for the high-performance twin, which features 240-hp. Continental engines and wing-tip fuel tanks.

SUCCESSFUL ENGINEERING AND APPROVAL OF CONVERSION OF BEECH MODEL 18 FABRIC CONTROL SURFACES TO METAL has been reported by Aero Sales at Houston. Johnnie Hamp said the first customer conversion revealed an increase of 3 to 4 mph. in air speed, which may have resulted from rerigging. Increase in weight of metal over fabric is said to be only two and one-eighths lbs., with conversion costing $1,800.

AT THE AGE OF 73, CUB MANUFACTURER W. T. PIPER has been issued a multi-engine rating after being checked out in his newest model, the Piper Apache. He is said to be the oldest person ever to earn a multi-engine rating. Mr. Piper learned to fly at 50 and has several thousand hours of pilot time. His firm has built over 37,000 airplanes.

FIRST FLIGHTS WERE MADE LAST MONTH by the Boeing Model 707, first jet transport in the United States, and by de Havilland's Comet 3, newest of the British jet transports. In a series of several flights, Boeing Chief Test Pilot Tex Johnston took the 707 to 42,000 ft. and above and flew it at speeds of more than 550 mph.

DOUGLAS AIRCRAFT HAS A $33,000,000 ORDER FROM PAN AMERICAN AIRWAYS FOR 15 LONG-RANGE DC-7C transports, with first deliveries early in 1956. The new version of the DC-7 will have a 5,000-mile range. Four Wright turbo-compound DA-4 engines will deliver 13,000 hp. The wing will be 10 ft.

(Continued on page 28)

MANUFACTURE OF CONTINENTAL E185 AIRCRAFT ENGINES IN JAPAN has been arranged by Continental Motors Corporation with license agreement for Fuji Motors Corp., Tokyo. Principals in the licensing are shown above. Left to right are G. Maruama of Nozaki Associates, Inc., New York; Richard S. Iwata of Fuji Motors; Souji Yamamoto, president of Fuji Motors, and C. J. (Jack) Reese, president of Continental.

FLIGHT MAGAZINE

Including SOUTHERN FLIGHT and MODERN AIRPORTS

AUGUST, 1954 **VOL. 42, No. 2**

COVER: This formation photo shows three new Beechcraft B50 Twin-Bonanzas during production flight tests at Wichita. Beech Aircraft Corporation has delivered 70 of the new B50's, powered by 260-hp. Lycoming engines. (Beech Photo by Jim Yarnell.)

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Don Vest's Operation—DENVER'S FAMOUS AIRCRAFT SALES AND FINANCING BUSINESS HAS EXPANDED 18

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager, P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas—Telephone STerling 2125.

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Behind mass cargo drops, where guns, jeeps, supplies and food are parachuted down with pinpoint accuracy, are years of experiment, toil, and experience that give Pioneer its rare blend of creative engineering ability and production "know-how".

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Regardless of evasive action

this radar-guided missile

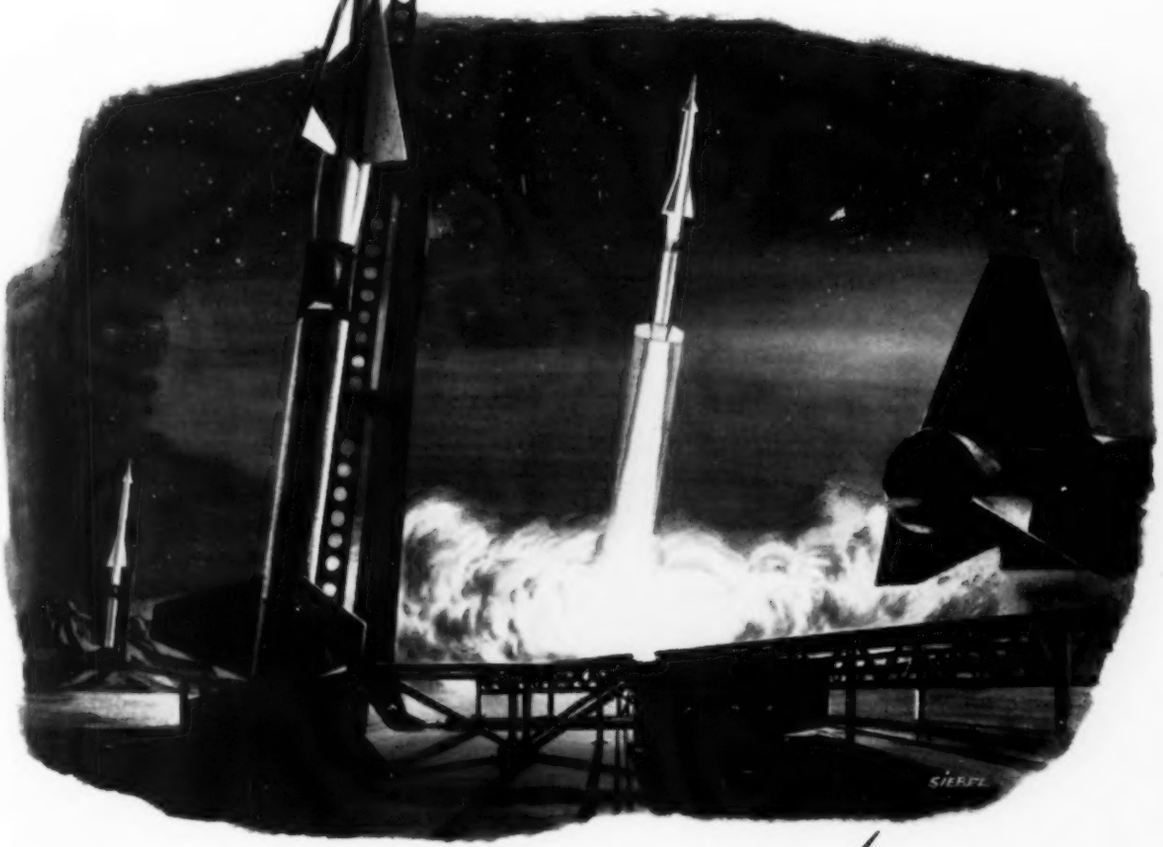
intercepts bombers at supersonic speed

Nike—product of teamwork

Now going into service as part of our nation's air defense system, the Army's *Nike* has already brought down high-flying, radio-controlled bombers during simulated attack.

The Team chosen by U. S. Army Ordnance Corps to develop and build this vital defense weapon consists of Bell Telephone Laboratories, Western Electric Company, and Douglas. The Nike missile, now in volume production, is directed by a guidance system which keeps it "on target" despite any evasive action. At the micro-second of intercept, Nike's warhead explodes. The target is destroyed. Highly mobile, the entire system can be moved by air, used with troops in the field, or to replace anti-aircraft guns in defense of fixed installations.

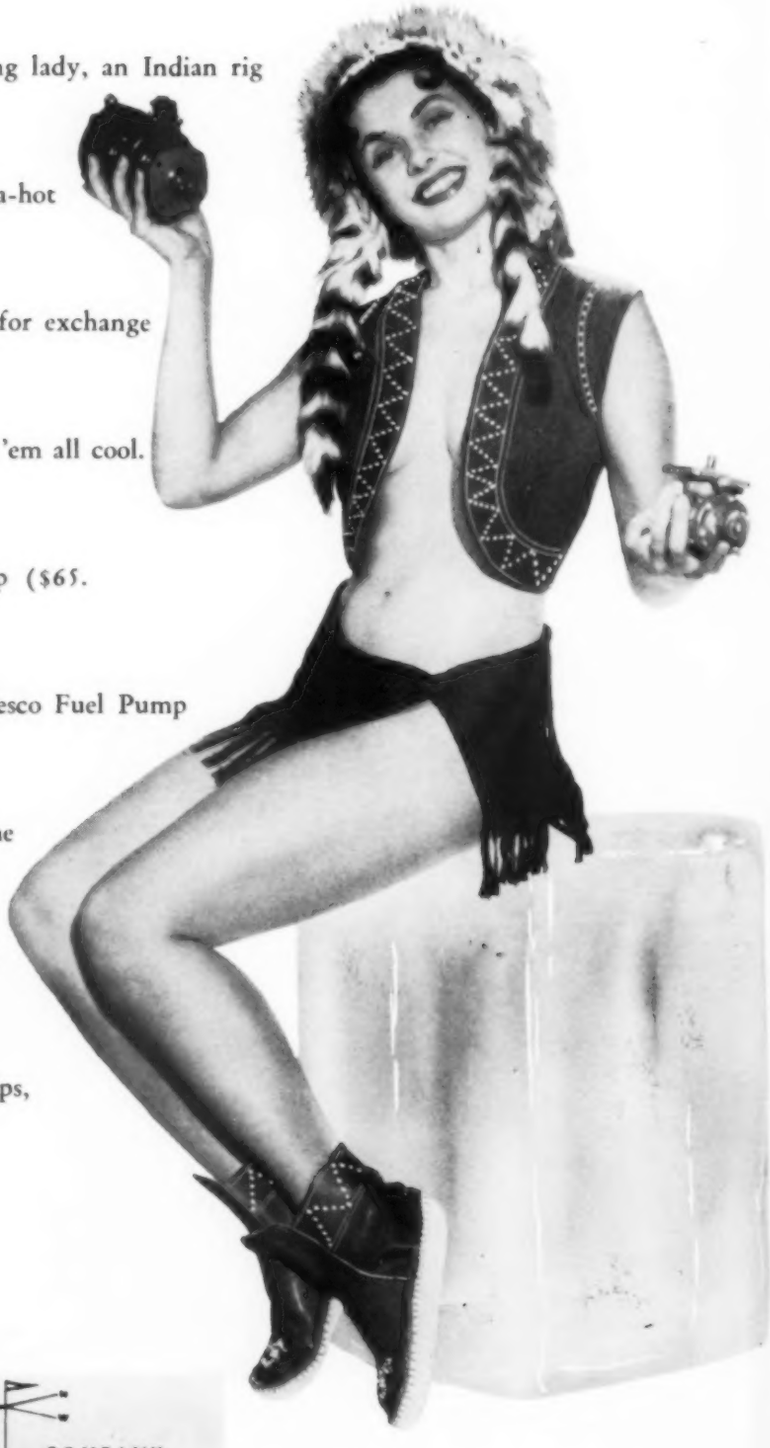
Selection of Douglas to design the Nike airframe recognizes leadership in missile engineering. Selection to build the missile in volume recognizes another Douglas "plus" — manufacturing dependability.



Depend on *DOUGLAS* **First in Aviation**

Model
PERFORMANCE!

Accessories seen here include a lovely young lady, an Indian rig borrowed from the Dobbs House, two extra-hot items overhauled by Southwest Airmotive for exchange purposes, and a 100-lb. cake of ice to keep 'em all cool. Held aloft are a 207J Pesco vacuum pump ($65. exchange or $85. outright), and a 4100 Pesco Fuel Pump ($30. or $45.), both for R-985 engines. The Pocahontas-type accessory about which this summertime idyll is woven is Carmen Phillips, 18, black hair, blue eyes, 119 lbs., 5'5".



Southwest Airmotive COMPANY
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Just among ourselves

EDITORIALS

ACROSS PARTY LINES

REPUBLICAN member of the Congress from California, Carl Hinshaw, last month successfully steered through the House a desirable bill which would force the Civil Aeronautics Board to grant permanent certification to the 14 local service airlines. While the odds are against enactment by the Senate during the current session, Hinshaw's victory and efforts are none the less commendatory, especially since the Civil Aeronautics Board majority came out against the bill.

Hinshaw's counterpart in the Senate is venerable Pat McCarran, author of practically every piece of major aviation legislation in the Senate, including the Civil Aeronautics Act of 1938. It is hoped that Democrat McCarran will give the local service airline certification bill the same effort Republican Hinshaw provided in the House. If he does the chances for passage during this session will be increased tenfold. Every senator in Washington recognizes McCarran's authoritative position in the complex field of civil aviation legislative needs and nearly all of them respect his knowledge of the subject.

The Bill would require the CAB to grant permanent certification to the locals unless the Board can prove their services have been inadequate and inefficient. Even if the Bill passes the Senate and is signed by the President, the narrow-minded Republican majority on the Civil Aeronautics Board, whose record is clearly against any progress in domestic civil aviation as is that of Under-Secretary of Commerce Robert Murray, probably will try to prove local air service has been inadequate and inefficient, using a few weak links and some poor route structures for the face-saving process despite the remarkable record of the local carriers since the first one started operation nearly nine years ago.

Whether the certification bill goes through or not there are a couple of pertinent observations worth noting. First, civil aviation is mighty fortunate to have two stalwarts like Republican Hinshaw in the House and Democrat McCarran in the Senate to fight for aviation progress. Second, civil aviation progress is so vital to national progress and security that legislation affecting it transcends party lines. This fact is so obvious that our domestic air transport policies should be as bi-partisan as our foreign policy. We've made a good start in Congress. It's in the CAB and the Department of Commerce that enlightened leadership shows up missing. Fortunately this sad situation can be changed by presidential appointments. But there's little hope for such change until the present Administration establishes and maintains a steady aviation compass course dedicated to progress instead of civil aviation strangulation.

PRACTICAL AIR EDUCATION

THE University of Tennessee at Knoxville is now entering the third year of an aviation training program which has proved beyond the shadow of any doubt that aviation courses, including flight training, should become a part of every college curricula.

Operated by the Department of Transportation in the College of Business Administration, UT's flight program has turned out more than 180 pilots with 3,600 hours of flight time since it was launched in the spring of 1952. The aviation students have flown over 288,000 miles in the course without a single accident or injury, which is adequate evidence of the close supervision provided.

Known as the "Tennessee Plan," the University contracts for services of a reliable local flight operator, Bill Cook, who provides instruction in both flight and ground school fundamentals.

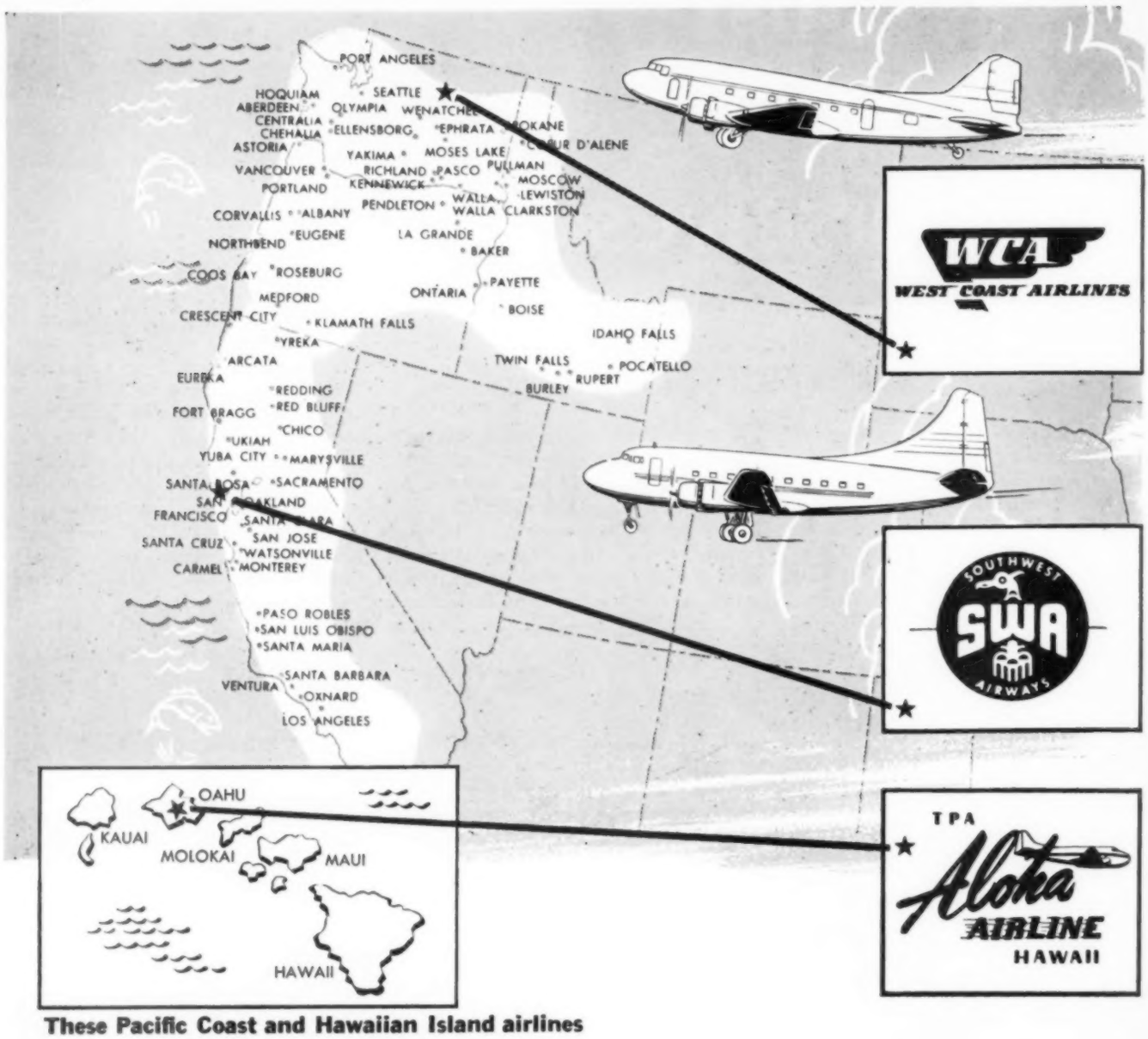
Ground school courses are available without cost to any student registered in the University. Flight students pay only for actual hours flown. The University expends no funds on the program and owns none of the facilities. The flight operator receives no compensation for the ground training. Students in any college of the University may take either the ground or flight training as an elective and receive full scholastic credit.

Cook eagerly gives demonstration flights to interested students and says that a free flight of 30 minutes will generally sell the program if the student can finance the cost of flight training.

Coordinator of the course, Dr. Clarence Kuhlman, believes the "Tennessee Plan" is the answer to the problem of thousands of youngsters who want to fly but, due to lack of opportunity, never get the chance. Kuhlman admits that cost is the chief limiting factor of the flight program. Until the price can be reduced the average college student cannot afford the training. Even though only a small per cent of students can afford the program, Kuhlman points out that at least those who were previously denied the opportunity are now being reached.

It is interesting to note that the U. S. Air Force as of July 1 was 8,000 men short of desired strength. They are about to undertake one of the most intense recruiting programs in history. We're convinced they wouldn't need such fancy and costly recruiting programs if they'd work with the nation's educators in establishing ground and flight training courses as the first step in a possible military aviation career — while Mom and Pop are paying the board bill. Such outstanding institutions as the University of Tennessee, Purdue University, the University of Illinois and other colleges with practical aviation as a part of their curricula, are capable of producing so many candidates for the military air

(Continued on page 48)



These Pacific Coast and Hawaiian Island airlines make over 800 takeoffs and landings every day . . .

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THE ENGINES in local service airlines are subjected to the toughest kind of operation. Southwest Airways, West Coast Airlines and TPA Aloha Airline are good examples . . . they make over 800 landings and takeoffs daily.

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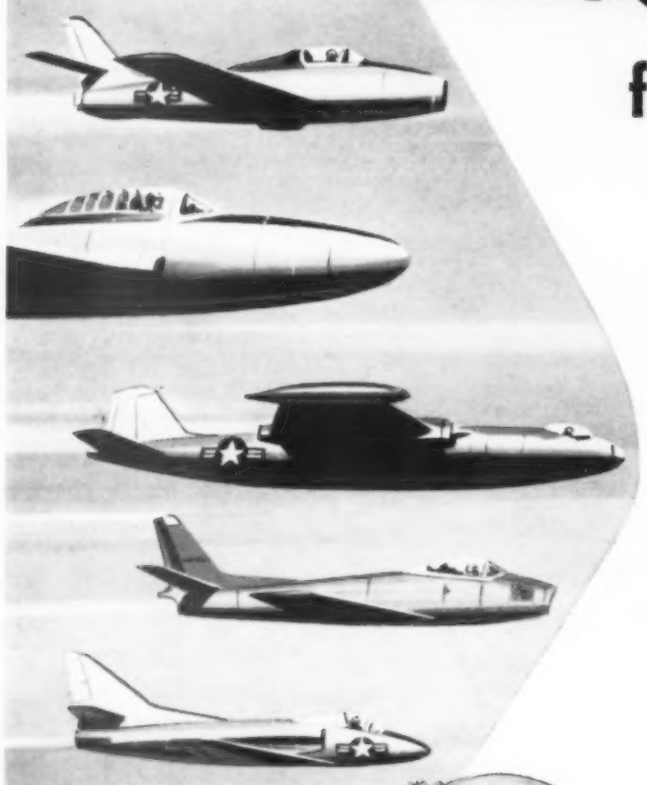

In service operation with the Armed Forces, the J65 JET engine has consistently exceeded its performance guarantees.

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fighter bomber for the U.S. Air Force

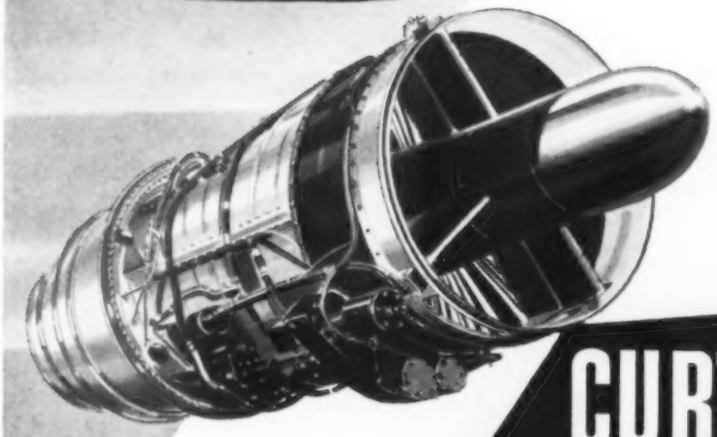
REPUBLIC RF-84F "Thunderflash"
photo reconnaissance fighter for the U.S. Air Force

MARTIN B-57 "Night Intruder"
bomber for the U.S. Air Force

NORTH AMERICAN FJ-3 "Fury"
carrier-based fighter for the U.S. Navy

DOUGLAS A4D "SKYHAWK"
carrier-based attack bomber for the U.S. Navy

(plus other high-performance military aircraft of classified status)



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SURVEY. Super Cub is widely used in survey and line patrol since it can fly as slow as 40 mph, gives pilot and photographer good visibility.

LIAISON. Piper L-18 and L-21 observation-reconnaissance planes, with superb short-field ability, are used by U.S. Army and NATO nations.

USAF TRAINING. Cadets get first training in PA-18-T Super Cub. More people have learned to fly in Pipers than any other plane.

"It takes a Super Cub to take it!"

Built for the really tough flying jobs, the Piper Super Cub is in use around the world on an astonishing variety of missions – expeditions high on mountain slopes, carrying missionaries deep into African jungles, patrolling pipe lines, training USAF cadets, dusting, spraying, hauling incredible loads in and out of short, rough strips.

While the Super Cub is famed for its performance it is noted also for its rugged, trouble-free design. Its stamina is best summed up by Ed Molitor, veteran San Diego pilot, in telling of the Super Cubs' use with the long-range tuna boats. Operating in the open Pacific these Super Cubs on floats save enough time scouting for bait to permit the tuna clippers to make an extra trip every year.

"The boats remain at sea from two to four months and the planes must be ready to fly at all times," says Mr. Molitor. "When you land a seaplane in the open sea under adverse conditions, it takes a Super Cub to take it."

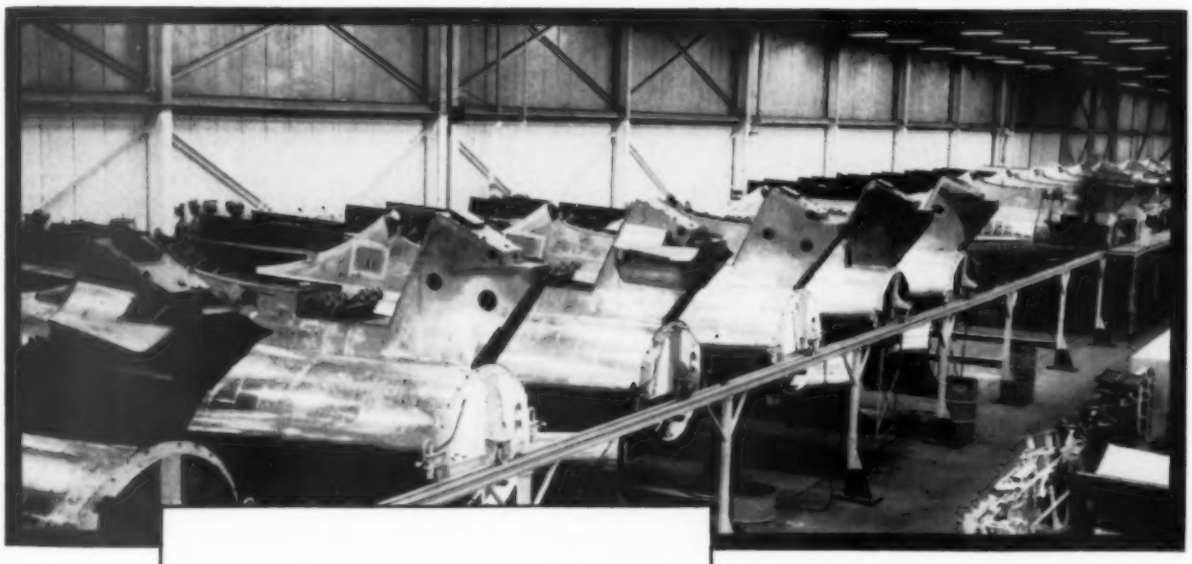
If you have a tough flying job to do or if you want an airplane whose sheer performance will give you a new conception of aircraft utility for farm, ranch or private flying, see, fly and buy the Super Cub – unmatched anywhere in the world.

NEW SUPER CUB BROCHURE. Send today for new brochure on the Piper Super Cub and PA-18-A agricultural plane. Dept. 8-F

Super Cub—BUILT FOR THE TOUGH JOBS IN FLYING BY **PIPER**

AIRCRAFT CORP.
LOCK HAVEN • PENNSYLVANIA

These five leading manufacturers are simplifying production by ordering major components from TEMCO.



TEMCO has proved its ability to produce in the past. Present 1954 schedules for Boeing, Convair, Lockheed, McDonnell, and Republic call for millions of pounds of assemblies and spares. The combined facilities of TEMCO's three plants are capable of producing 20,000,000 pounds per year. But there is more to it than quantity — for TEMCO has established a reputation for building a quality product, on schedule, at one of the lowest costs in the industry.

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25 years of leadership in serving aviation!

This Gulf innovation of 1928, believed to be the first mobile airport tender, proved a real boon to aviation. First used at Drew Field in Tampa, it speeded fueling by replacing the 5-gallon fuel containers previously used.

Today, users of Allegheny County Airport in Pennsylvania enjoy another Gulf innovation—the first airplane service station. Opened in 1953, it provides complete 24-hour refueling service for aircraft, as well as lounge, rest rooms, chart rooms and weather information.

FOR MORE than a quarter of a century, Gulf has been dedicated to the task of supplying quality products and better service to aviation.

As aviation has grown, Gulf has grown, too—expanded its facilities for developing and producing ever finer fuels and lubricants, delivering a broader aviation service.

We are proud of our time-honored association with the manufacturers of aircraft and the men who fly them. We look ahead to many more years of serving you.

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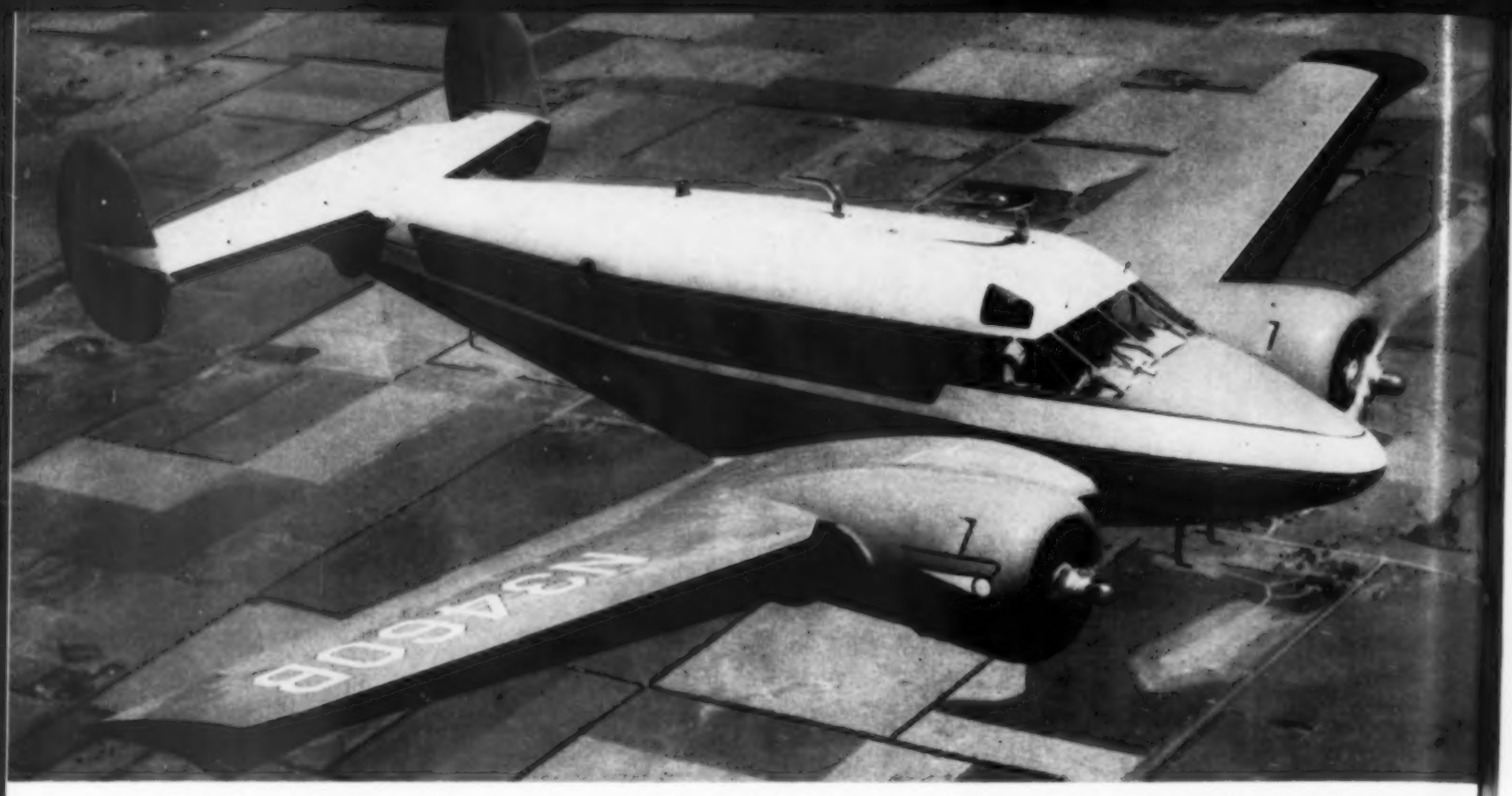


First flight view of the new Super 18 shows the new Beechcraft "look." Note squared wing tips, jet-cooled nacelles, larger and more numerous cabin windows and higher cabin dome. —(Beech Photo by Jim Yarnell.)

The First Super 18 Beechcraft

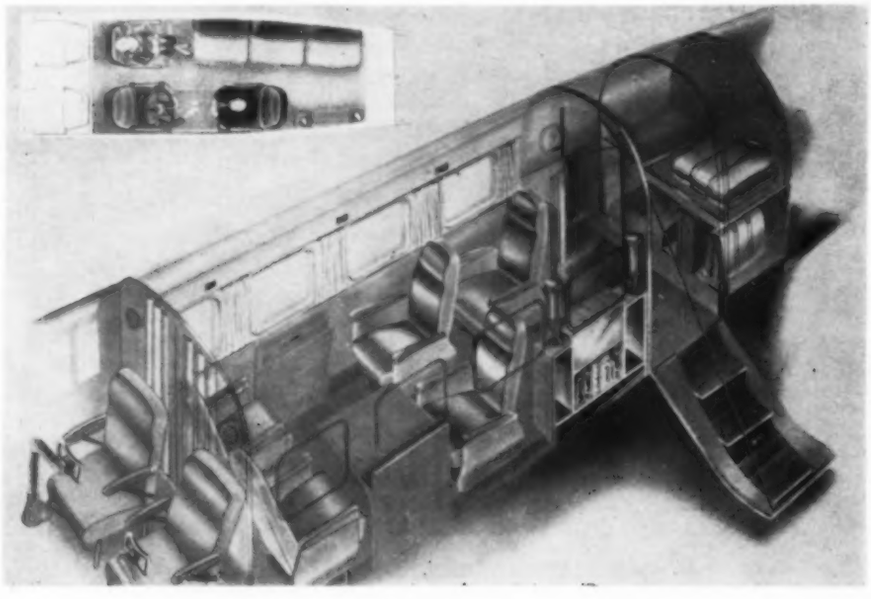
Beech begins deliveries of roomy new E18S business transports

THE pictures on these pages are the first to show the first production-model Super 18 business transport to be delivered by Beech Aircraft Corporation. It was to go to Atlantic Aviation, Beech distributor at Wilmington, Delaware, as the first of an initial production order of several million dollars worth of Super 18's.

Although the $100,000 Super 18 has increased performance, its major advantages over predecessor Model 18 Twins are cabin roominess and comfort. These have become key factors in business transport utilization and have received much emphasis in the extensive modifications which went into the Super 18.

Major changes from the D18S give the new version a definite "new look" from several angles. The top of the fuselage from back of the cockpit to the tail surfaces has been raised a full 6 inches. The same windshield was retained, however, by re-fairing the top skin. By raising the height of the cabin, "walk around" comfort was achieved for cabin occupants.

In the cutaway sketch, note the new cabin interior. The cabin door was moved rearward one bay and an additional window installed on both sides. This, plus larger dimensions for the windows, gives the Super 18 a new and different look. The new cabin door is rectangular, instead of rounded as in the old model, and is hinged at the bottom to open downward. Built-



Cutaway shows 7-place Super 18 cabin, with inset showing arrangement with 3-place divan. Cabin has 6 inches more height than D18S, with four windows instead of three on each side. New door-stair is rearward of former location. Baggage rack and galley are built-in.

New tail wheel, which lifts Super 18 tail 6 ins. higher than on D18S, is shown being examined by Claude Palmer, assistant chief test pilot, who has performed most of Super 18 flight tests. New nose taxi light is seen in large photo.
—(Beech Photos by Jim Yarnell.)

in steps make it a stair-door and the door-cable serves as an assist-bannister for passengers. To the left of the cabin door is a built-in galley and to the right is a large built-in baggage rack. Note solid bulkhead behind baggage rack. Baggage is carried inside the airplane and is all in one place, eliminating outside baggage doors and the need for the older-type baggage well in the nose. Opposite the rear door in the entry compartment is a chemical toilet. A new-type door is used between the cockpit and the cabin.

The tail-wheel truss has been modified to raise the tail six inches.

A new nose has been designed for the Super 18 and its prominence is shown in the accompanying photos. It contains radio and an 80-gal. fuel tank and is removable for easy maintenance. it also contains a glassed compartment for taxi lights. Inside mounting of an ADF loop is provided.

Engines are the same Pratt & Whitney R-985 radials as used by the D18S, rated at 450 maximum continuous horsepower. Their nacelles have been cleaned up. They are closed around the usual cooling slot but there are two cooling slots for the top cylinders, one on each side. The old exhaust stack, which protruded well into the breeze, has been eliminated and the

(Continued on page 42)

"New look" for Beech is best shown by this portrait, spotlighting the new door-stair for easy entry.
—(Beech Photo by Jim Yarnell.)

This private airport at Denver is headquarters for Vest Aircraft's multi-million-dollar aircraft sales and financing business, which has grown to nation-wide proportions. Built on used aircraft and parts volume, the firm recently took on new aircraft sales with an Aero Commander distributorship.

Don Vest's Operation

A constantly-expanding business in aircraft sales and financing supports excellent facilities

By WILLIAM D. MADSEN

Photos by the Author

SKY Ranch, largest private airport in the world and located six miles east of mile-high Denver, Colorado, is the home of one of aviation's most interesting enterprises. This is the Vest Aircraft Company, which specializes in large-volume used aircraft and parts sales and light-plane financing. Recently, Vest entered the field of new aircraft sales by taking on an Aero Commander distributorship. Still more recently, it became the sole source of parts supply for the Temco Swift, purchasing 4 carloads of parts and tooling from Temco in Dallas and agreeing to maintain adequate parts supply for all Swift owners.

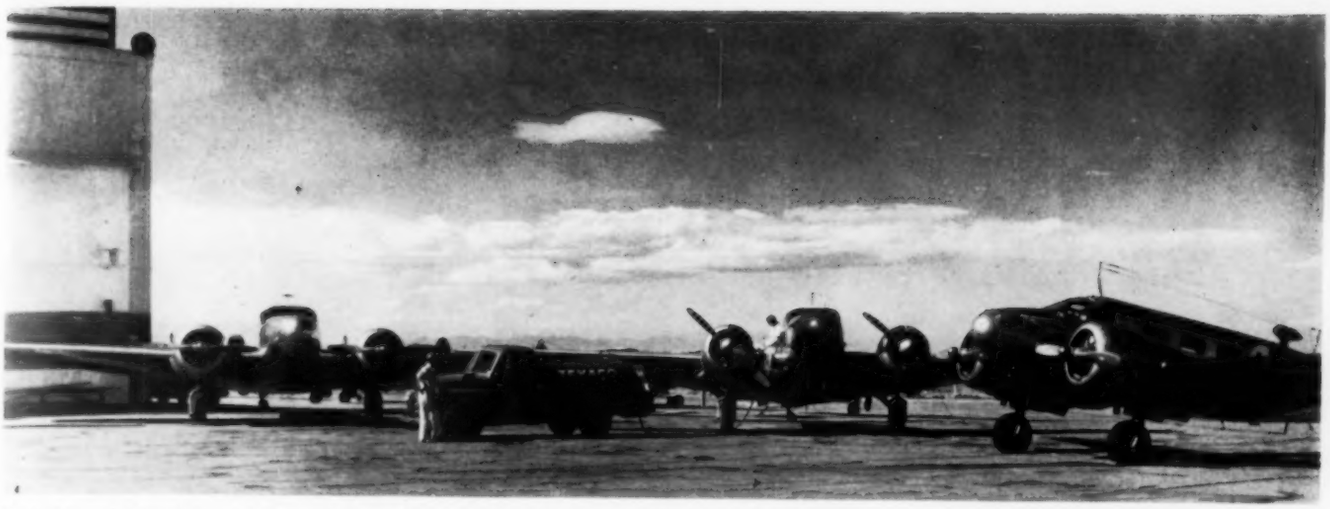
First-time visitors always get a free meal as guests of Vest Aircraft in the Sky Ranch restaurant. In-flight lunches are prepared on request.

Last year Vest Aircraft Company grossed more than $2,250,000. Sales of used planes brought in most of this — $1,166,400 — while aircraft financing produced over $800,000 worth of business. The firm's parts business grossed more than $250,000.

"We believe in this business and we are convinced it will grow to much larger proportions," said Don W. Vest. For example, he said he had already sold two Aero Commanders to launch his new aircraft sales program with a good start.

Vest's enthusiastic, cheerful attitude is immediately felt the first time a pilot and his passengers fly into his Sky Ranch — whether they have come

A favorite for transient pilots, Sky Ranch maintains a comfortable lounge. Available are navigation charts, telephones, clean rest rooms, and auto rentals.



Vest Aircraft has become a service center for business fliers, with a full range of maintenance and servicing facilities. Shown is part of its concrete ramp of two and a half acres. Two large hangars offer ample storage.

one mile or a thousand. They are invited to be the guests of the management at a meal in the bright, airy cafe which overlooks the flight line. Breakfast, lunch or dinner at the visitor's choice, and the sky's the limit. Vest told us he had just okayed a $128 tab representing free meals over a 2-week period. "It's good business, too," he said.

Excellent lodgings are close by for visiting airmen. The office secretary will make advance reservations in fine downtown hotels if asked to do so; tourist courts are within a five-minute drive of the airport. Taxi service is prompt, and Avis rent-a-cars are parked on the ramp.

As a matter of record, every service which the sportsman pilot or business executive will require is immediately available. Clean rest rooms, telephones, a knotty pine lounge and across-the-counter chart sales are part of the office arrangement. Line service, including airplane washing, cleaning and polishing, is offered on the ramp; three standard grades of aviation gasoline are truck-delivered to your plane, while tie-down on the concrete ramp or hangar space is at the owner's option. A & E service is on tap in hangar. 2.

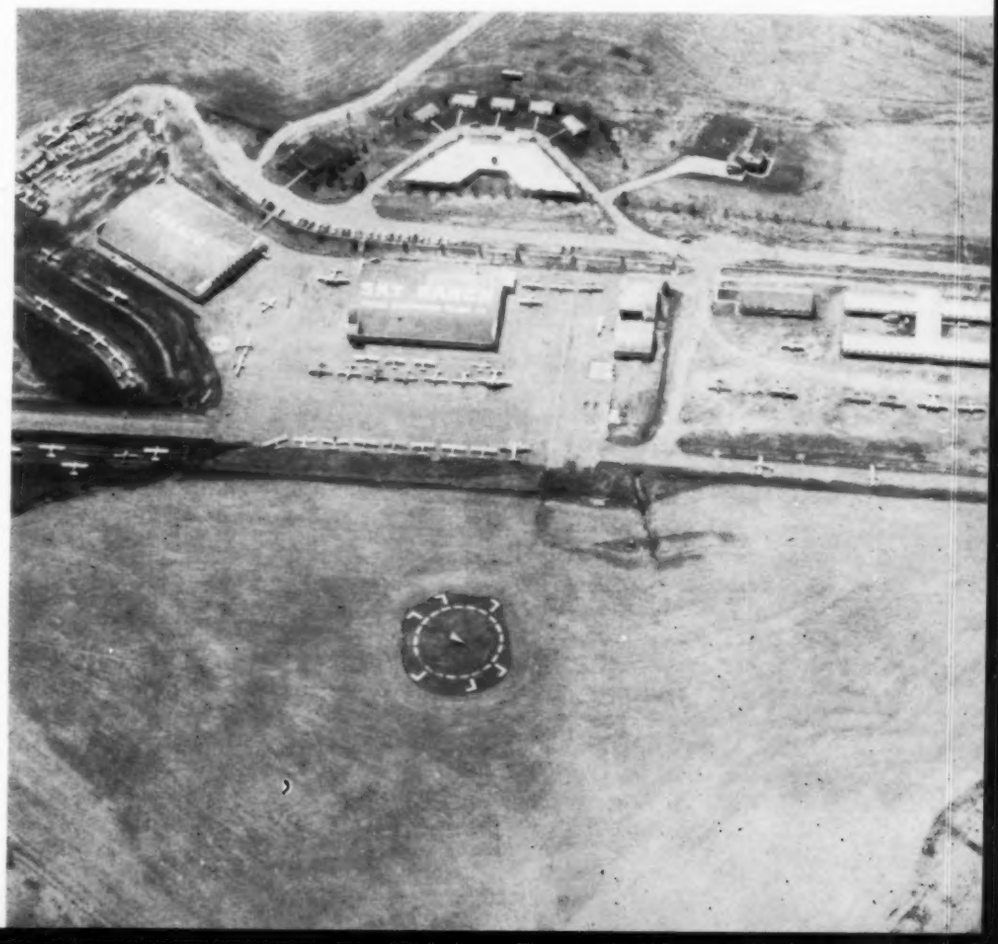
There is a direct telephone service to CAA weather offices and to Denver Radio in the lounge. The pilot is offered prompt access to all CAA communications, and the Unicom is monitored constantly.

The instrument shop is one of the most complete west of the Mississippi River. The stock bins are stored with all kinds, types and makes of instruments, new and used; the work benches are equipped with an astonishing number of precision machines, testing devices and accurate tools. Meticulous watch repair is included as part of the activity. The repairmen are workers skilled in their trade with years of schooling and experience behind them.

The 4,400-4,600-ft. runways at a mile high altitude, which will accommodate a DC-3 with ease, are laid out in the shape of a triangle. The paved surfaces are maintained in smooth perfection; graders, surfacers and tractors are sheltered in the machine shop together with the fire truck and snow plows for winter service.

The parts division and aircraft repair shop, under the management of Eddie Dyer, is one of the most active elements at Sky Ranch. A tremendous stock of new and used airplane parts and accessories forms the backbone of a business which serves two continents. An unusual feature is the CAA-approved shop where landing gears and engine mounts are manufactured on the spot. Trained mechanics have the vast cavern of Hangar 2 to work in, replete with welding shop, magnaflux facilities, metal bending machines, lathes, power tools of all kinds, an engine overhaul room, fabric shop and

(Continued on page 53)



Air view shows Sky Ranch operations area. Field has hard-surfaced runways of 4,400 and 4,600-ft. length. It is located 6 miles east of Denver.

Here is Helicopter Air Service's famous Bell N-203, which has logged over 5,200 hrs. of scheduled service without an incident. It was delivered on June 10, 1949. HAS operates 600 hrs. a month with a fleet of six Bells. These 200-hp. machines carry an average mail load of 400 lbs., cruise 75 to 80 mph., climb at 770 fpm., and have a range of over 2 hrs. Useful load is 747 lbs., with a 2,350-lb. gross weight and a 1,603-lb. empty weight. See page 21 for detailed operating costs. Mail is carried in 4 bins — one on each side externally, one in the cabin and one behind the engine. They provide 45 cu. ft. of cargo space.

5 Years of Copter Schedule

The operating record of Helicopter Air Service at Chicago, with maintenance and cost details

By C. W. MOORE
Vice President
Helicopter Air Service, Inc., Chicago

MANY commercial helicopter operations have developed in the United States. These cover a wide range of services including a growing number of corporate-owned helicopters which are operated as business tools much the same as fixed-wing business planes. They also include five airline operations — our own Helicopter Air Service in Chicago, Los Angeles Airways, New York Airways, Mohawk Airlines and National Airlines.

There is wide interest in the expansion of commercial helicopter operations. For example, there are some 50 applications now on file with the Civil Aeronautics Board for proposed new scheduled helicopter airline service. Yet to be heard from are countless groups in many cities which are closely watching helicopter developments for the opportunity to inaugurate rotary-wing services.

Until now there has been a dearth of reliable information on the actual experience involved in helicopter operations. We of Helicopter Air Service believe we have contributed materially to a further understanding of the facts involved. For we have been operating a scheduled helicopter air mail service since 1949 in the Chicago area. Our records follow the standard requirements and procedures of the Civil Aeronautics Board. From them, helicopter operational facts have been compiled for this objective review.

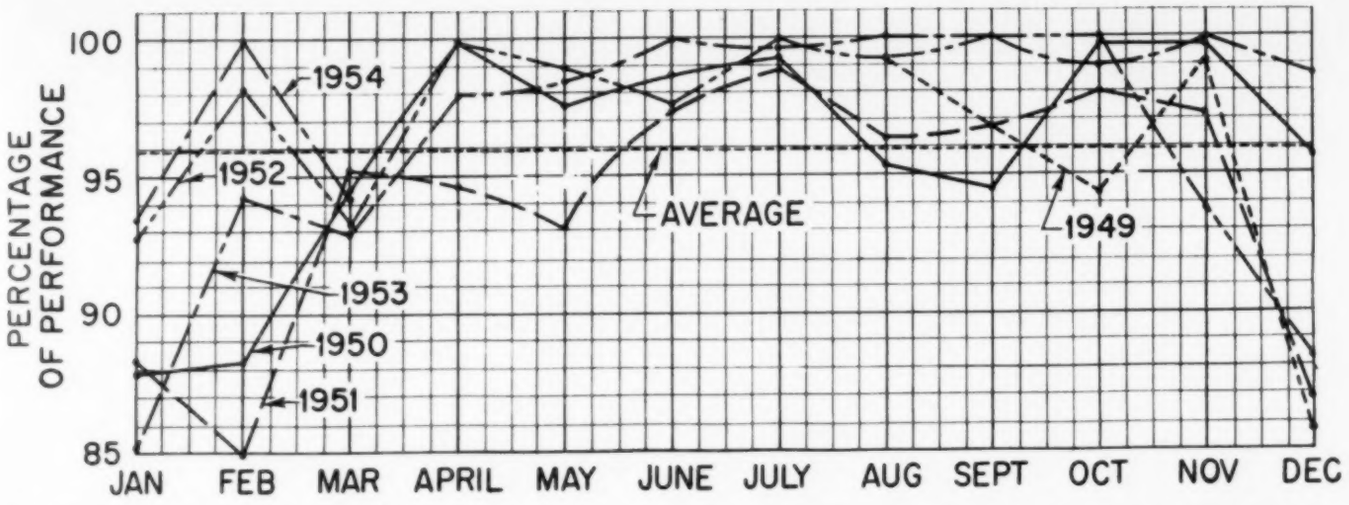
Early in 1949 HAS was awarded a temporary certificate of public convenience and necessity, and operations were begun on August 20 of that year.

Profitable from the Start

Now let's look at the past five years of our operation. We are extremely proud of our record. We have flown more miles without accident than any other helicopter operator in existence. We are the only scheduled carrier, helicopter or fixed-wing, that has had only one mail rate and has operated in the black and paid dividends every year of our operating life. We feel that there are three prime reasons for this degree of success. The first is our safety record, flying over 30,000 hours of accident-free flight with no injuries to personnel or damage to equipment. The second factor of our success has been regularity of operation, which over the past five years has given us a percentage of performance factor of 96%. This record can be attributed to our competent personnel and excellent availability of equipment. The 4% loss in performance has been almost entirely due to weather, such as low ceilings and poor visibility. Ninety-six per cent is the best percentage of performance record in scheduled helicopter service today.

Thirdly, we come to the item of cost. By using the small equipment, namely the Bell Model 47's, we have been able to operate with the lowest operating costs of all scheduled helicopter air mail carriers.

Next, let us look at a summary of



This chart shows the development of operating efficiency as attained by Helicopter Air Service. In five years, its percentage-of-performance factor has been 96 per cent. The 4 per cent loss is almost totally due to low ceilings and poor visibility.

the advantages of our service over these past years. First, for the Post Office Department, we have expedited the handling of air mail at the downtown post office, the airport and the fifty-five suburban post offices. The volume of air mail at many post offices we serve has more than doubled, thereby increasing postal revenues. The time saved by using helicopters is from 6 to 36 hours depending on connections. In the suburbs we have expedited the delivery of both incoming and outgoing air mail, and have set a pattern of helicopter operation so that future helicopter passenger service may be introduced with the maximum of public support.

Our extensive scheduled operations have been extremely valuable to the helicopter industry as a whole. By working closely with the manufacturer and reporting our service experience to them, they have used this experience to improve product design for the military and commercial market. We have also worked very closely with Aircooled Motors, Inc., in the development of the 200-hp. Franklin engine, which is used in most of the small type helicopters. We have received word that the military engine program has been advanced two years through our close cooperation with the manufacturer. At the present time we are conducting an accelerated service test on a modified military engine. The completion of this test will provide considerable additional information for all concerned.

Equipment

The six Model 47 helicopters we operate on our existing air mail routes are all five years old and to illustrate our utilization, the time log which Bell Aircraft publishes on the top ten commercial ships in number of hours flown shows the entire HAS fleet holding spots 1 through 6, with each having logged more than 4,800 hours. In fact, two ships have recently passed the 5,000-hour mark. All are still operating every day and are in excellent shape.

We are now flying approximately 600 hours per month. With this amount of flying, we have set up our maintenance schedule so that one of our six helicopters is continually in overhaul. Our daily flight schedule requires our other five helicopters to be in the air at the same time. Thus we must have 100% availability of equipment each day. Since the start of our operation we have never lost the start of a scheduled mail trip due to lack of equipment availability. This can be attributed to the excellent work performed by our maintenance and flight crews, and the dependability of the Bell helicopters.

The mail is carried in four bins. The two external side bins supplemented by the interior cabin bin and the rear bin combine to give us about 45 cubic feet in which we can carry between 400 and 500 pounds of mail, depending on fuel load. The helicopters are equipped with ARC-12 VHF radios and maintain contact with our operations office, the airport and control zones. All of our aircraft have standard VFR instruments.

Maintenance

Working under our superintendent of maintenance is a crew of twenty-one, including two clerks who maintain accurate records of parts and a current inventory as well as a time history on all of the parts and components. Our mechanics receive helicopter training in our shop, for even if they have previously worked on helicopters, they still have to learn our

Bell Model 47D Helicopter Direct Hourly Operating Cost — 1953
Helicopter Air Service, Inc.

TOTAL FLIGHT HOURS 7067:15

FLIGHT OPERATIONS		
Pilot Salaries	$ 8.34	
Fuel and Oil	3.03	
Insurance	2.21	
		$13.58
MAINTENANCE		
Labor	$ 8.69	
Airframe and Rotor Spares	5.76	
Engine Parts and Out Labor	2.13	
		$16.58
DEPRECIATION		
Airframe	$ 2.20	
Engine	1.03	
All Other (Rotor)	4.32	
		$ 7.55
Total Direct Cost Per Flight Hour		**$37.71**

SOURCE: Civil Aeronautics Board Reports

Direct hourly operating costs during 1953 are detailed above by Helicopter Air Service. These figures are from CAB accounting records for scheduled airline service. The six Bells were operated 7,067 hrs. 15 mins. in 1953, or about 1,178 hrs. each.

Route chart of Helicopter Air Service shows the four separate routes which it operates with helicopters. Route A totals 108 miles and is flown in 2 hrs. 5 mins. Route B covers 95 miles and is flown in 1 hr. 55 mins. Route C, covering a 102-mile arc, is flown in 2 hrs. The airport-to-post office shuttle is 8 miles.

precise methods of operation. The line crew works on two shifts. The first runs from 5 a. m. to 1:30 p. m., and the second shift works from 1 p. m to 9:30 p. m. The basic duty of the line crew is to maintain the ships on flight status. This includes fueling, preflighting and routine inspections.

The line overhaul crew takes care of removing the components for overhaul and inspection as dictated by flight time and re-installing them after this work has been completed. The overhaul crew is engaged in overhauling major components, such as transmission, rotor blades, hubs, swash plates, etc., as well as overhauls of electrical components including starters, generators, and voltage regulators. Our record of safety and performance can largely be attributed to our firm policy on the retirement of parts and the close watch of our component and parts log, so that each item that so requires is properly retired when its prescribed life has been reached. This same philosophy is also applied in the case of all overhaul and inspection periods.

The wooden main rotor blades are overhauled at 360-hour intervals and these units on our ships now have in excess of 3,800 hours. An advantage of the wooden blades, other than their satisfactory service life, is that any possible minor damage can be readily detected and corrected at an early stage.

The overhaul program for our engines is handled directly by the engine manufacturer. At the present time we are top-overhauling our engines at 360 hours and major-overhauling them at 720 hours.

The maintenance program on the helicopter consists of trip, daily, 40, 120, and 360-hour inspections.

Flight Operations

The actual operation that brings in our revenue is carrying the mail for the Post Office Department. First, in describing the flight personnel, I might add that besides the chief pilot and seven line pilots, our president, Ham Reidy, the operations manager, and myself are all licensed helicopter pilots. Our operations manager went through the Bell training school in one of the first classes, and having been associated with the industry since that time, now has approximately 3,500 hours in helicopters. The chief pilot is a veteran of helicopters with approximately 4,000 hours of rotary-wing time. The rest of our pilots have helicopter time ranging from about 1,200 to 4,500 hours and they each now average from 800 to 900 hours of flight time per year.

The function of carrying the air mail by helicopter in the Chicago area is performed by flying three basic routes to suburban communities in addition to the shuttle route between the airport and the downtown post office.

Route "A" circles over a distance of 108 miles serving towns north of Chicago as shown on the map and takes two hours and five minutes flight time. Route "B" covers 95 miles of air mail service to the communities west of Chicago and the airport, with each trip requiring one hour and fifty-five minutes. Route "C," a two-hour flight, consists of a 102-mile arc south of the city. Each of these round-trip routes is flown three times a day with the circular direction being reversed in the afternoon. Eighteen round trips a day are flown over the 9-mile shuttle route between the airport and the post office. These flights follow the Chicago Sanitary Canal, providing complete public safety in the event of a forced landing. The out-bound shuttle carries the air mail from the post office to the airport where it is dispatched to far-reaching points by airliner.

The in-bound shuttle to the post office delivers the mail which arrived at the airport by airliner for delivery within the city. The shuttle takes less than ten minutes by helicopter as opposed to about one hour by ground transportation, and gives greater frequency of service.

Our present routes provide service to 34 suburban heliports which handle mail for 55 outlying communities. As the pilot lands at the suburban heliport, he is met by a mail messenger. Without need of stopping the engine, the messenger removes the mail destined for his post office, places the outgoing mail aboard, checks with the pilot and the helicopter is winding along its way in a minimum of time. This entire procedure is usually done in less than one minute and often requires as little as 30 seconds. To speed the delivery of the mail, these heliports are located as close as possible to the local post office building. Most

(Continued on page 48)

Larger engines give better take-off for DC-3 with more payload. Pan American modification boosts 1,200 hp. of regular engines to 1,450 hp. each for a total of 500 additional horsepower.
—(Pan American Airways Photo.)

More DC-3 Performance

WORKHORSE of commercial and military aviation for almost two decades, the familiar Douglas DC-3 is continually coming up with something different and getting a new lease of life. The latest is Civil Aeronautics Administration approval of a joint Pan American Airways and Pan American-Grace Airways modification in which 1,450-hp. Pratt & Whitney R-2000 engines from DC-4's are replacing 1,200-hp. engines generally used on the DC-3.

A PAA announcement says the modification also includes significant other improvements to supplement the larger engines — extra wing tanks which increase the fuel capacity by 420 gals., new propellers and heavier landing gear. It is said, however, that only 172 lbs. have been added to the empty weight so that the net gain has been a 1,528-lb. increase in net payload — which is a considerable engineering achievement. The new gross weight is 26,900 lbs.

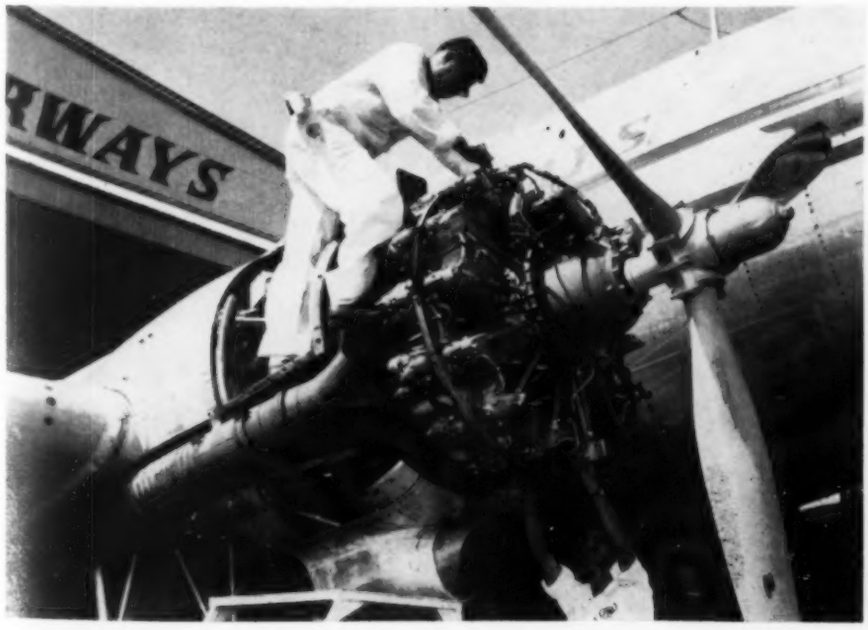
A 20-mph. increase in cruising speed puts the modernized Douglas above the 200-mph. mark and the additional fuel extends its range some 600 miles.

The R-2000 modification for DC-3's is now available to other DC-3 owners at Pan American's customer base located at Brownsville, Texas. Pan American is also making available the CAA-approved engineering data to other airlines, fixed-base operators and executive aircraft owners.

Engineering on the project was under the direction of Arthur W. Kuhn, staff engineer for PAA's Latin American Division. The modified aircraft was flight tested by Captain Richard Vinal, assistant chief pilot (technical) of the Division.

The airline said the modification solves the need for a more powerful and more efficient airplane for use into the high-altitude airports on the South American West Coast. At La Paz, Bolivia, for example, the airport elevation is 13,400 ft. above sea level. The larger engines give the modernized DC-3 a third more take-off horsepower, a greater safety factor and a bigger payload for operations from La Paz.

Pan American pilots call the modernized version the "DC-3½," and predict many more years of service for the Douglas. ★ ★ ★



Here's R-2000 engine being installed on DC-3. There is little change in exterior appearance except for larger oil scoop. Increase in speed amounts to 20 mph.
—(Pan American Airways Photo.)

Flying display of helicopters at the American Helicopter Society's 10th annual forum in Washington included this line-up of machines. In the foreground are a Hiller, a Bell, a Sikorsky and a Doman.
—(Bell Aircraft Photo by Paul Marcott.)

Copter Forum

LEADERS in rotary wing aircraft progress gathered in Washington recently for the American Helicopter Society's 10th annual forum. New developments were discussed by authorities and there were flying and static displays, which attracted large crowds as in past years.

Highlighting the program was the honors night banquet at which the Society bestowed its honors and awards. Honorary fellowships in the Society, for notable and meritorious service in the advancement of rotary-wing aeronautics, were presented to Floyd W.

(Continued on page 42)

Presentation of awards is shown in these photos. At left, Michael E. Gluhareff, Sikorsky chief engineer, receives the Dr. Alexander Klemin award and at right Rear Admiral Clarence E. Ekstrom accepts the Captain William J. Kossler award for the Navy.

Honorary fellowships in the American Helicopter Society are being presented in the photos above by T. R. Pierpoint, awards chairman, to Floyd W. Carlson (left), chief test pilot for Bell, and to Ferdinand D. Moran (right), Civil Aeronautics Board examiner.
—(Bell Aircraft Photos by Paul Marcott.)

Participating Beech distributors are shown above at one of the factory's summer sales courses. At right are Sales Manager Leddy Greever (top) and W. H. Balzerick, who directed the courses. —(Beech Photos.)

Training for Sales

BEECH Aircraft Corporation's distributors have attended a series of sales training courses this summer at the factory in Wichita. Directed by W. H. Balzerick of the factory sales staff headed by Leddy Greever, the courses climaxed a steady increase in Beech commercial sales.

"Our commercial sales have never looked better," distributors were told by Frank E. Hedrick, vice president. "We are producing a higher percentage of commercial planes — in comparison to military models — than at any time since 1950 and the commercial figure is still climbing. Bonanza output was recently increased 50 per cent from 22 units to 33 units per month, B50 Twin-Bonanza production has reached high gear and we are starting deliveries of the new Super 18."

The sales course for distributors was conducted with a 3-day program, there being three courses during the summer. Most of the sales course was devoted to training in effective selling methods and how to discover and overcome obstacles in meeting buyer resistance. Graphic sales aids were used and presentations included actual case histories detailing how "tough" prospects were sold and kept sold.

Performance, design and construction features of Beech airplanes were detailed in full by factory authorities. These included M. J. Gordon, Herman

(Continued on page 38)

Scenes below show Beech distributors at work during the 3-day sales course. Factory tours and demonstrations took them behind the scenes for a better understanding of the products they sell. Classroom lectures were followed by written examinations. Many distributors said it was the most thorough training in sales they ever had. —(Beech Photos.)

300-hp. Supercharged Franklin

Helicopter engine has 285-hp. normal rating from sea level to 9,600 ft.

SUPERCHARGING for light aircraft engines has been introduced by Aircooled Motors, Inc., of Syracuse, New York, with announcement of its new 6-cylinder Franklin 0-425-2 helicopter engine. It has a take-off power rating of 300 bhp. from sea level up to 8,200-ft. altitude, with a normal power rating of 285 bhp. from sea level to 9,600-ft. altitude.

Developed under Navy sponsorship and granted an approval status by the Bureau of Aeronautics, it was designed to provide military helicopters with greatly improved sea level and altitude performance. Aircooled Motors says the new engine has the highest specific power output of any aircraft engine of the horizontally-opposed, air-cooled type. Displacement is 425 cu. ins.

Principal features include a Rootes-type single-speed, gear-driven, positive-displacement supercharger; an engine-driven-fan integral cooling air system, and dry sump lubrication oil system. Vertical operation is provided with power take-off from a flange integral with the top end of the engine crankshaft—but adaptation to horizontal operation can be accomplished readily.

The new engine is an evolutionary development of the Franklin 0-425-1 engine which powered the Sikorsky S-52 helicopter, the most noticeable difference being the addition of the supercharger. This is isolated from torsional vibrations of the crankshaft system by torsionally-flexible quill shafts which are provided in the supercharger drive gear train. All supercharger drive train gears are mounted in ball-bearings to assure a maximum degree of gear alignment.

Extensive detail design modifications have also been incorporated in the Franklin 0-425-2 engine to assure adequate durability at the increased horsepower ratings over the 0-425-1 configuration.

Engine cooling capacity has been considerably increased by large cylinder finning area and by improving cooling fan performance through use of a high-solidity fan design with small, high-performance airfoil section blades.

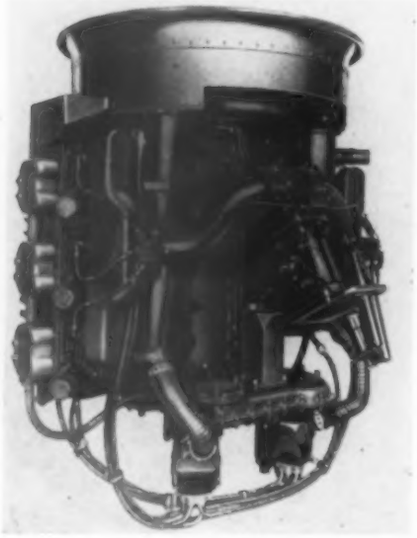
The cylinder structural configuration embodies design modifications to increase the fatigue strength of the cylinder dome, barrel section, and hold-down flange. Adequate valve durability has been assured by use of Stellite facing on both the intake and exhaust valves, hollow-stem sodium-cooled exhaust valve, and exhaust valve rotators. The piston ring configuration consists of narrow-faced, Keystone-sectioned rings, of which the top compression ring is chrome-faced, in order to minimize cylinder bore wear, effect better control of oil consumption, and prevent ring sticking at the increased power ratings. The aluminum-alloy, precision-die-cast pistons are a solid-skirt, cam-ground design and employ a cast-in "Ni-Resist" insert in the top-ring groove position to minimize top-ring groove wear and pounding.

The cast aluminum-alloy crankcase incorporates design modifications to strengthen the case and reduce stress concentrations in the more highly stressed areas. Shot-peening of the higher stressed areas is employed to increase the fatigue strength of these sections. Crankshaft strength and fatigue durability have been increased by the use of a forged chromium-nickel-molybdenum steel at maximum machineable core hardness and full nitriding of all surfaces. The crankshaft design also incorporates design modifications to reduce stress concentrations in critical areas. Main bearing and connecting rod bearing shells are a steel-backed, copper-lead, precision-insert type, employing a thin lead-tin overlay.

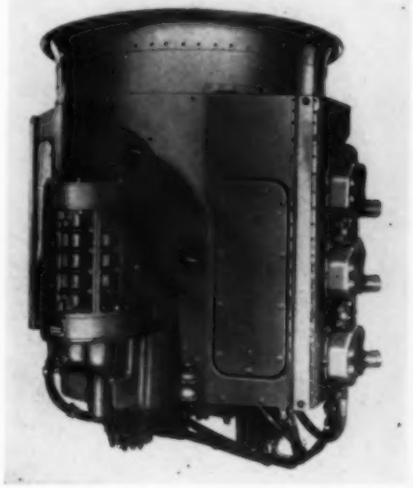
The ignition system comprises dual magnetos, shielded ignition harness, and 18-mm shielded spark plugs. Magnetos are isolated from the crankshaft torsional vibration system by provision of rubber cushioned torsional vibration couplings.

Extensive use is made of lightweight magnesium heat-treated castings for all major housings, oil pan, mounting brackets and accessory drive cover plates.

Accessory drives (AN type) are provided for a 200-amp., 28-volt generator, fuel pump, electric tachometer, 28-volt starter, vacuum pump, and hydraulic pump. ★ ★ ★



Front view of Franklin 0-425-2, showing carburetor and intake system.



Rear view of Franklin 0-425-2 showing installation of Rootes-type supercharger.

New Aviation Facilities
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Make CAMAIR your aircraft headquarters in the Houston-Galveston area. 6,000 foot runways and complete services for maintenance, modification and overhaul provide facilities for America's heaviest military, corporate and private aircraft.
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A DIVISION OF Cameron IRON WORKS, INC.

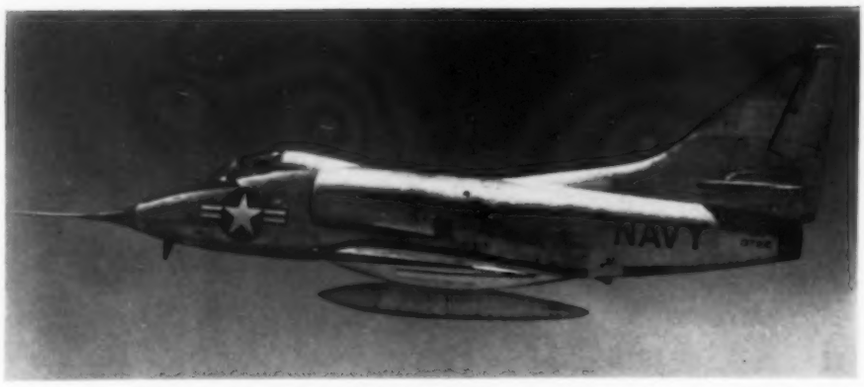
AIR REPORT

(Continued from page 5)

longer than current DC-7's, carrying 7,860 gals. of fuel as compared to 6,400 gals. at present, with engines and propellers located 5 ft. further from the fuselage by a wing-root extension.

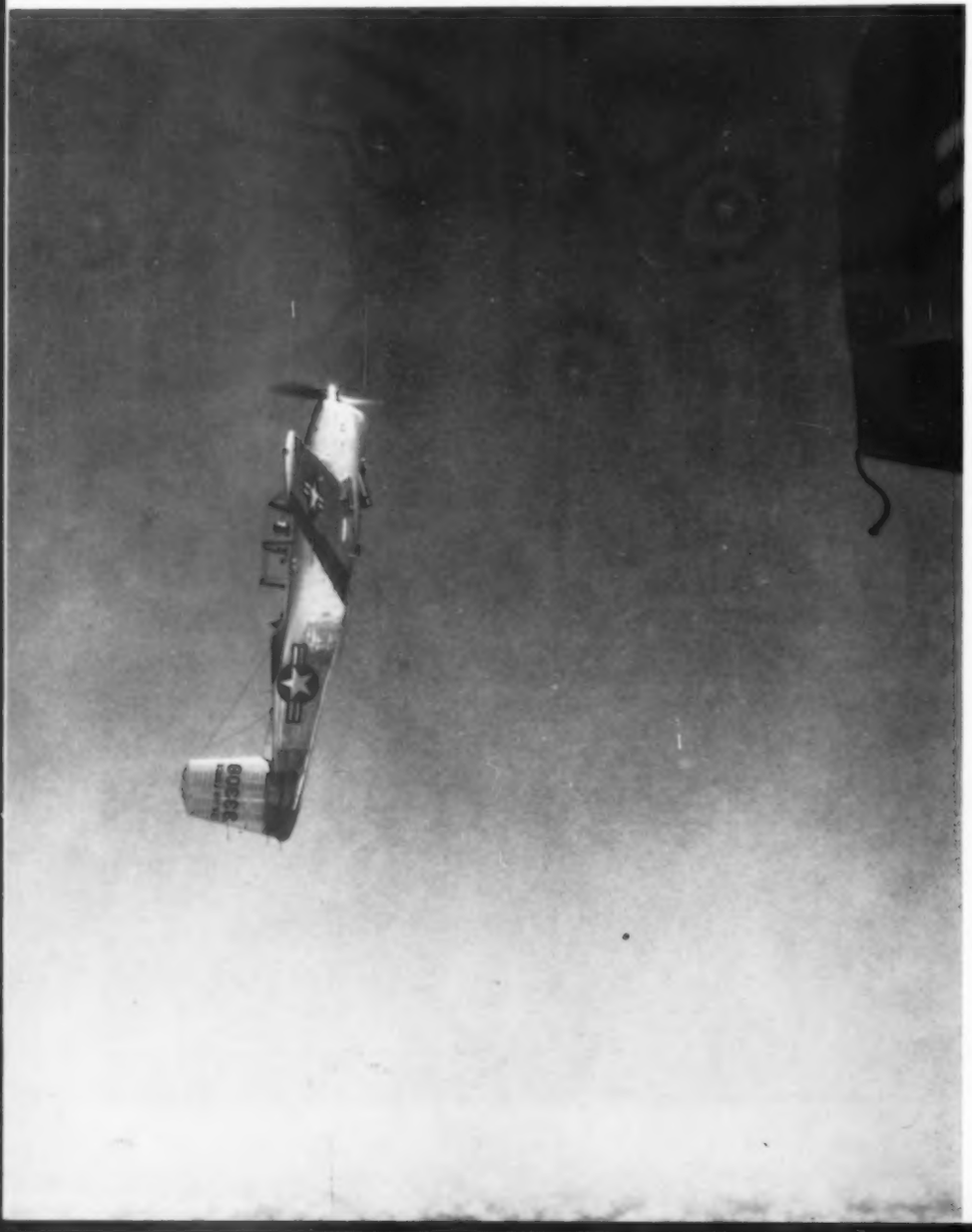
TEMCO AIRCRAFT CORPORATION at Dallas has received an Air Force contract to overhaul and modify 40 T-6G trainers and another contract for production of aft fuselage sections for the Republic F-84F Thunderstreak jet fighter-bomber, the F-84F order requiring 1,200 additional workers. The firm now employs 6,500 persons.

GREATER THAN EVER is the schedule of events for the 1954 National Aircraft Show at Dayton, Ohio, Sept. 4-6. All four branches of the armed services will give daily flight programs and exhibits of engines, instruments, equipment, parts and accessories will surpass those of last year. Special speed events will include Thompson Trophy, Bendix Transcontinental Trophy, Allison Trophy and General Electric Trophy classics. National Aircraft Show headquarters are in the Biltmore Hotel at Dayton.



BANTAM A-BOMBER FOR CARRIER OPERATIONS is this new Douglas A4D Skyhawk, which is less than half the size of many operational jet fighters. Powered by a Wright J-65 Sapphire engine, it has performance and range superior to that of many fighters. Wings are so small they do not have to be folded for storage on carriers. Douglas Chief Engineer Ed Heinemann said the A4D represents his philosophy that airplanes can be built smaller by better engineering — at less cost and in less time.
—(Douglas Photo.)

HANGING ON ITS PROPELLER, this Beechcraft T-34 Mentor was caught in the vertical position of a loop. Note wing-tip of another Mentor used by photographer. Mentor is powered by 225-hp. Continental engine and has 189-mph. top speed and no acrobatic restrictions. Navy and Air Force production is under way at Wichita.
—(Beech Photo by Jim Yarnell.)



SOMETHING NEW IN LOCAL AIR SERVICE occurred recently when Ozark Air Lines inaugurated scheduled service to Jefferson City, capital of Missouri. Before beginning operations, Ozark notified the city that a minimum of 350 passengers per month, yielding $2,700, would be required to meet the airline's out-of-pocket expenses in serving the stop and thus assure the future of the service. This is the first time an airline has advised a city of its traffic needs to clear expenses. During the first month of service, Ozark boarded and deplaned not 350 passengers at Jefferson City but 587, reports Laddie Hamilton, president.

PERMANENT CERTIFICATION

NEW VHF TRANSMITTER-RECEIVER for lightplanes is this compact AR-1, announced by the Gonset Co., 901 South Main St., Burbank, Calif. Continuously tunable receiver covers 108 to 128 mcs., with provision for converters for low frequency ranges. Transmitter is crystal-controlled with provision for 8 channels. Power input is 5.5 watts and a dynamotor is utilized to provide plate power for both transmitter and receiver. Small enough to fit in glove compartment, AR-1 weighs 4 lbs. 7 oz., with dynamotor weighing 3 lbs. 4 oz., operating on 12 to 14.5 volts DC.

THE AIRFRAME'S THE SAME —THE POWER'S TURBO-PROP

Here is the Convair YC-131C Military Transport, a conversion to Allison Turbo-Prop power of the Model 340 Convair-Liner. Modified under an Air Force contract, the YC-131C is now flying powered by two Allison YT56 Turbo-Prop engines driving Aeroproducts propellers.

With this installation the Air Force is leading the way in testing the practical operating usefulness of Turbo-Prop engines—paving the way for the change from reciprocating to Turbo-Prop engines in transport and logistic aircraft.

Allison Turbo-Prop design and performance characteristics can help today's transports meet tomorrow's advanced operational requirements of:

- **Increased Payloads**
- **Higher Cruising Speeds**
- **Lower Fuel Cost**
- **Less Maintenance Time and Cost**
- **Shorter Take-offs and Landings**
- **Greater Passenger Comfort**
- **Reduced Ground Handling Time**
- **Reduced Crew Fatigue**

Since December 1950, Allison has conducted extensive flight tests with its own Turbo-Liner to exploit the advantages inherent in Turbo-Prop power for transport service. In addition, the Navy is accumulating experience in the Douglas A2D Skyshark and the Convair R3Y Tradewind—also powered by Allison Turbo-Prop engines driving Aeroproducts propellers.

Today that pioneering is paying off in the availability of Turbo-Prop engines and propellers which will enable military and commercial aircraft to carry bigger payloads, farther, faster and more economically.

GM GENERAL MOTORS

Allison

Division of General Motors, Indianapolis, Indiana

WORLD'S FASTEST E

The new *Learstar* is the only production twin-engine, transport-category airplane that can cruise at over 300 mph TAS at 10,000 feet, the only one that can fly 3200 miles nonstop, the only one that can cruise at 270 mph TAS using only 100 gallons of fuel per hour, and continue at this rate for more than 10 hours. In addition, the *Learstar* offers 2000 feet per minute rate of climb, exceptional single-engine performance, and the ability to operate with ease from pocket-size, grass-runway airports. The *Learstar's* spectacular performance is matched by the scientifically planned *Learstar* cabin interiors, researched and developed during many years of experimentation under actual conditions of executive travel.

T EXECUTIVE AIRLINER

These luxurious interiors, accommodating up to ten passengers, make for higher aircraft utilization, because *Learstar* passengers fly more hours without fatigue. *Learstar* executive airplanes are built to CAA-specified airline standards and are designed for flight qualification under the identical CAA "4b" specifications required of such modern airliners as DC-7's and Super Constellations. *Learstars* are the only airplanes designed specifically for executive use that are built to qualify in this category... For complete information, including performance curves, direct inquiry on your company letterhead to Lear, Inc., Aircraft Service Division, Santa Monica Airport, Santa Monica, California.

LEARSTAR

A modification of the famous Lockheed Lodestar

YEARS AHEAD IN PERFORMANCE

HAIRCUT FOR AIRPLANES is the latest, this mechanic being shown using the clippers on the 300-mph. Learstar business transport in production at Lear Aircraft Service, Santa Monica, Calif. On the Learstar, apertures between fixed and movable wing and empennage surfaces are closed against drag-producing air flow with special nylon brushes. Regular barber's clippers are most practical tool for trimming these brushes for close fits, says Art Cruse, Lear service manager. —(Lear Photo.)

OF LOCAL SERVICE AIRLINES is authorized in a bill passed last month by the House. The Senate has yet to act on the measure.

AERONCA MODEL 7 CHAMPION AIRPLANE manufacturing rights have been sold by Aeronca Manufacturing Corp., Middletown, Ohio, to Flyers Service, Inc., Holman Field, St. Paul, Minnesota. The firm will set up "Champion Aircraft Corp." for production and sales of the airplane and its parts, with deliveries of the 2-place Champions in 6 months. Robert Brown heads the firm, with Henry Dickhudt as vice president in charge of production. Sales manager is George B. Millard. He is preparing plans for a national merchandising program to sell the Champion, a tandem trainer-agricultural type plane.

MANUFACTURING RIGHTS, FABRICATED PARTS INVENTORY AND ENGINEERING AND TOOLING on the Temco Swift have been sold by Temco Aircraft Corp., to Vest Aircraft Co., Denver. Don Vest said he doesn't plan to produce any new Swifts, but that he will provide parts to all Swift owners.

CONTINUATION OF CURTISS C-46 MODIFICATION PROGRAM under new rules adopted by the Civil Aeronautics Board has been voted by directors of the Aircraft Engineering Foundation. Monte H. Snedeker, president, said the Foundation will produce a C-46 with a gross take-off weight of 47,000 lbs. at a modification cost ranging between $15,000 and $20,000 per airplane, with modification kits being available to the Defense Department at the same cost. Snedeker said the CAB's new SR-406 establishes a stable certification status for the C-46 and removes the stigma of previous restrictions on its use in certain types of transport operations.

A NEW AUTOMATIC PILOT FOR LIGHTPLANES, called the "Par" (for position and rate), was flown in the recent All-Woman Transcontinental Air Race in a Cessna 140. Produced by Summers Gyroscope Co., Santa Monica, Calif., the new pilot uses a Summers position-and-rate gyro, a flight controller and two position servo actuators. Total weight is 17 lbs. It was certified by CAA inspectors in recent ground and flight tests.

SPERRY GYROSCOPE COMPANY is producing another U. S. Air Force order for more than $2,000,000 worth of Sperry Zero Reader flight systems.

ONE THOUSAND CESSNA L-19 BIRD DOG liaison planes have been crated for overseas shipment since 1950. Hundreds have been flown away from the factory in addition to the crated shipments.

THE AIR FORCE WAS 8,000 MEN

LOW-COST OMNI ATTACHMENT for Narco Simplexer, popular 12-channel VHF communications unit, is the new Narco "Omniplexer" Model VOA-2, shown above. It can be mounted separately or pancake style, easily plugged into receptacle already provided on back of Simplexer. Left-Right needle (left) serves also as "To-From" indicator by flipping upper center switch. Dial at right is course selector. Omniplexer weighs 2 lbs. 11 oz., and costs $195.

BELOW STRENGTH at the recent start of its fiscal year. A new recruiting program is aimed at bringing in an average of 11,000 airmen per month. Its 1955 goal is a strength of 970,000. It began its new year with 947,000, including 129,275 officers. It has 275,000 officers and men assigned to overseas duty.

BEECH AIRCRAFT CORPORATION last month voted payment of two dividends of 25 cents per share each, thus restoring the average earnings of Beech stock for the past several years. Mrs. O. A. Beech said net earnings for the first 9 months of the current fiscal year were $3.93 per share after taxes.

DE HAVILLAND AIRCRAFT IN ENGLAND SAYS OFFICIAL APPROVAL HAS BEEN GRANTED FOR AN OVERHAUL LIFE OF 1,000 HRS. for Gipsy Queen 70-3 and 70-4 engines used in de Havilland Dove aircraft. Over 1,600 Gipsy Queen 70 engines have been built and are operating some 360,000 engine hours annually. The overhaul life was formerly 800 hrs.

PRATT & WHITNEY AIRCRAFT has developed a new nickel-based, heat-resisting alloy which has boosted the power rating of the J-48 jet engine, rated at 7,250 lbs., used in Lockheed F-94C Starfires and Grumman F9F-5 and F9F-6 jets for the Navy. The new alloy is called "Waspaloy."

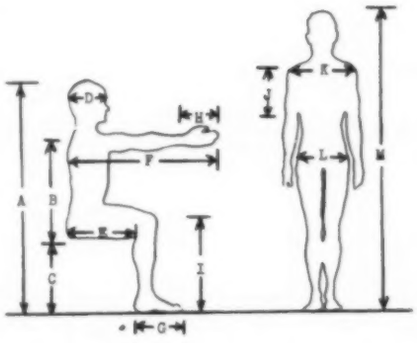
CONVAIR HAS BUILT ITS LAST B-36 and will deliver it to the Air Force on Aug. 14 in special ceremonies at Ft. Worth. First XB-36 flight was made on Aug. 8, 1946. USAF has never announced number of B-36's produced but total approxi-

Dimensions of the Average Man

AIRCRAFT designers and others interested in airplane comfortization should study this little sketch. It has been published by the Daniel and Florence Guggenheim Aviation Safety Center at Cornell University.

In inches, body dimensions of the average man as sketched are as follows:

	Avg.	90% Between
A. Erect sitting ht.	36.0	33.9- 38.0
B. Trunk ht.	23.4	21.5- 25.1
C. Seat ht.	19.0	17.5- 20.5
D. Head length	7.7	7.3- 8.1
E. Seat length	18.9	17.3- 20.5
F. Arm reach	35.3	33.0- 38.4
G. Foot length	10.4	9.6- 11.3
H. Hand length	7.6	7.1- 8.2
I. Knee ht.	21.7	19.9- 23.5
J. Shoulder-elbow ht.	14.6	13.4- 15.7
K. Shoulder width	17.9	16.7- 19.8
L. Seat breadth	14.2	12.9- 15.9
M. Standing ht.	68.5	64.4- 72.5
Weight, lbs.	154.3	127.8-202.2



mates several hundred. Convair is now preparing production of a supersonic bomber at Ft. Worth. It is also continuing a B-36 maintenance and overhaul project.

NEW SKYWAY MAP OF IDAHO is being distributed by the Idaho Department of Aeronautics at Boise, of which Chet Moulton is director. It was prepared by Jeppesen and Co., Denver.

NEW AERO-CORRY RESEARCH AWARD program of cash prizes for engineering students contributing to improved fuel system designs for piloted and guided aircraft has been announced by Aero Supply Manufacturing Co., Corry, Pa. First prize will be $1,000 cash, second $500, third $300 and two consolation prizes of $100 each.

BOOM IN PAY-LATER AIRLINE VACATION TRIP FINANCING has been reported. Pan American Airways reports over $1,000,000 in sales in the first six weeks of its pay-later plan, with over 90 per cent of the tickets sold representing new business brought in by the plan. Average amount of ticket financed has been about $500. American Airlines recently joined the Pan American plan, extending the pay-later convenience to domestic points in conjunction with overseas trips. The Pan American plan calls for a 10-per cent down payment with the balance to be paid in smaller monthly payments. American's plan requires no down payment with 12 to 24 months for the balance. Latest to offer the service is TWA, which requires 10 per cent down and the balance in 20 monthly payments. Pacific Finance Corp. handles the TWA plan. Sample TWA deals include: New York-Los Angeles, round trip, $22 down and $11.76 per month; New York-Paris, round trip, $47 down and $24.84 per month.

LOCKHEED IS FLIGHT-TESTING A NEW AIR FORCE FIGHTER, the XF-104, powered by a Curtiss-Wright J-65 Sapphire engine rated at 7,220 lbs. of thrust. It is of the "day-fighter" type. . . . **LOCKHEED SUPER CONSTELLATION** production has been extended well into 1956 by a new Air Force order for a quantity of the large turbo-compound transports of multi-convertible military design. It is designated C-121-C by the Air Force.

CURTISS-WRIGHT HAS EXTENDED ITS MANUFACTURING ACTIVITIES through licensing and engineering agreements with German and Swiss companies for production of scientific apparatus for electronic and ultra-sonic fields. The corporation already operates 10 divisions, producing a wide variety of products including aircraft engines, propellers, electronic flight simulators, specialized metal products, precision castings, forgings and extrusions, diesel engine governors, precision clutches, textile spindles, aircraft windshield wipers and consumer and industrial plastic items.

FIRST 3-BLADED PROPELLER FOR LIGHT TWIN-ENGINE AIRCRAFT is the new Hartzell Model 83 x 20-2A-8433, which is all-metal, hydro-selective, constant-speed and full-feathering. The new propeller is optional equipment on the new Aero Commander Model 560, shown above. Engineering tests reveal the new Aero Commander with the new propellers has a quieter cabin by 7 to 10 decibels, with more uniform sound-meter readings. The new propeller is 6 ins. shorter than the two-bladed model and provides more clearance between cabin and tips as well as slower tip velocities. Feathering is accomplished by a spring mechanism and unfeathering by engine oil pressure.
—(Aero Design & Engineering Photo.)

PACIFIC AIRMOTIVE HAS CLOSED ITS ENGINE SHOP at Linden, N. J., as the result of a strike by workers there. Thomas Wolfe, president, said work previously performed there will be accomplished in other PAC branches and no change is contemplated in the firm's eastern sales activities.

FOUR MEXICAN CITIES have been placed on the international leg of the 1954 Texas Air Tour, which begins Oct. 9 and ends at Brownsville on Oct. 16. Over 100 planes are expected for the Texas tour with half of them continuing from Brownsville on the 5-day Mexican leg, with visits to Vera Cruz, Cordoba, Tuxpan and Mexico City.

EXTENSIVE FLYING ACTIVITIES OF THE UNIVERSITY OF ILLINOIS have been described as including an air charter service which has flown the equivalent of 53 trips around the world during the last 8 years. The University owns 37 lightplanes. Last year, its charter service flew 185,182 miles. This year, 191 students took flying courses, bringing to more than 2,500 the number who have taken flight training in 8 years. The University has not had an aircraft injury or fatality during the 8 years.

THE 339th AND LAST PIASECKI HUP HELICOPTER has been delivered to the Navy. First production contracts for the 6-place tandem-rotor helicopter were received in August, 1949. Piasecki's prime production is now H-21 tandem transport helicopters for the Air Force and Army. Under test and development are two H-16 transport copters of 44-passenger capacity for the Air Force.

HORTON & HORTON CUSTOM WORKS, specializing in aircraft interiors and painting, has opened a new lounge for pilots at Meacham Field, Ft. Worth, located near the terminal building. It is air-conditioned and has desks, writing materials and a television set as well as comfortable lounges.

MAX BRAND of Tulsa, Okla., is the new manager of Downtown Airpark, Oklahoma City distributorship for Aero Commanders, and has opened an Aero Commander sales and service branch in Tulsa at Hangar 3 on Municipal Airport.

BOUNDARY LAYER CONTROL has been demonstrated by the Navy with a Grumman F9F-4 in which air bled from the Allison J33-A-16 jet engine was blown out over the trail-

(Continued on page 58)

Airmen's Calendar

Aug. 18-19—National Aeronautic Association Convention, Omaha, Neb.

Aug. 19-22—Air Force Association Convention, Omaha, Neb.

Sept. 4-6—National Aircraft Show, Dayton, Ohio.

Sept. 6-12—Aviation Week in Amarillo, Texas, with Terminal Dedication and Jaycee Air Show on Sept. 12.

Sept. 19-21—18th International Northwest Aviation Convention, Hotel Vancouver, Vancouver, B. C.

Oct. 5-7—10th Annual Champion Spark Plug Conference, Secor Hotel, Toledo, Ohio.

Oct. 5-9—SAE National Aeronautic Meeting, Hotel Statler, Los Angeles.

Oct. 9-16—6th Annual All Texas Air Tour.

Oct. 13-15—Airport Management Conference, jointly sponsored by University of Oklahoma and AAAE, Norman, Okla.

Nov. 8-10—NATA Annual Meeting, Biltmore Hotel, Miami Beach, Florida.

Nov. 12-14—Texas State Aviation Convention, Galveston, Texas.

Nov. 14-17—ADMA 12th Annual Meeting, Mayflower Hotel, Washington, D. C.

NATION-WIDE **SALES & SERVICE** ORGANIZATION

AERO DESIGN Commander 560

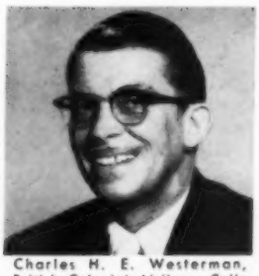
Louis Humphreville, Executive Aircraft Corp., Detroit City Airport, Detroit 13, Michigan.

A M "Sime" Bertolet, Reading Aviation Service, Inc., Municipal Airport, Reading, Pennsylvania

H. Leibee Wheeler, Buffalo Aeronautical Corporation, Buffalo Municipal Airport, Buffalo, New York.

Don Hood, Air Sales & Service, Inc., Weir Cook Municipal Airport, Indianapolis, Indiana.

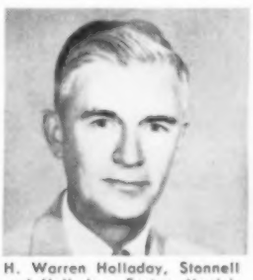
Don Pennington, Southern Aero, Inc., Municipal Airport, Atlanta, Georgia.



Charles H. E. Westerman, British Colonial Airlines, Calle Lopez No. 1 — Despacho 502 Mexico, (1) D.F., Mexico.

O. B. Callan, National Aero Sales Corp., Midway Airport, Chicago, Ill.

Max Brand, Downtown Airpark, Inc., 1800 South Western, Oklahoma City, Oklahoma.

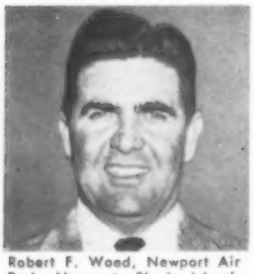


H. Warren Holladay, Stonnell and Holladay, Easton Municipal Airport, Easton, Md.

Cheston M. "Ches" Newhall, The Babb Co. (Canada) Ltd., Montreal Airport, Dorval, P.Q.

Don Vest, Vest Aircraft & Finance Co., P. O. Box 5306, Sky Ranch Airport, Denver, Colorado.

Gene Hudman, Carolina Division of Southern Aero, Inc., Charlotte, North Carolina.



Robert F. Wood, Newport Air Park, Newport, Rhode Island.

George Harte, Harte Flying Service Inc., Chanute Municipal Airport, Chanute, Kan.

B. G. Vandre, Van's Air Service, Municipal Airport, St. Cloud, Minnesota.

Art Meurer, Arthur Meurer Co., Inc., LaGuardia Field, New York, N. Y.

Peter Graves, Southern Ohio Aviation Company, Inc., Dayton Municipal Airport, Vandalia, Ohio.

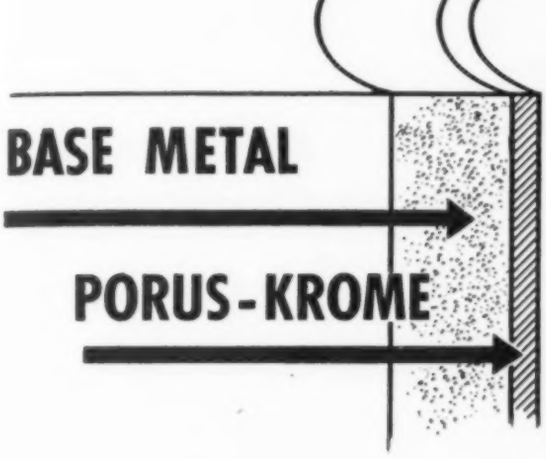
NATION-WIDE SALES and SERVICE

AERO DESIGN Commander

AERO DESIGN AND ENGINEERING COMPANY

TULAKES AIRPORT • OKLAHOMA CITY, OKLAHOMA

Reverse the Wear...



VAN DER HORST
TRADE MARK

* *PORUS-KROME is a dense, hard, wear and corrosion-resistant chromium, produced by the Van der Horst Corporation of America, and which gives working surfaces an infinite number of tiny oil-retaining reservoirs for perfected lubrication.*

U. S. PATENTS
2,048,578, 2,314,604 and 2,412,698

The effects of wear on expensive, machined parts — such as aircraft cylinders — can be reversed. By Van der Horst processing, even badly worn cylinders recover their original dimensions. Then, instead of wearing out again in the usual time, they last at least twice as long.

We use channel type PORUS-KROME* to accomplish this reversal. It has been proved and accepted by the armed services, and by air carriers. One of the latter finds the entire cost of each renewal is paid for by reduced lube oil consumption. This special chromium steps up engine efficiency!

Besides that, and a much better resistance to airborne abrasives, the costs of overhaul and spare parts are cut to a minimum. Even the rusting of cylinders — always a major menace of "low time" aircraft engine life — is counteracted by chromium.

One manufacturer now specifies PORUS-KROME cylinders as standard in all *new* engines —to make them *stay* new! For equal advantage, have Van der Horst "reverse the wear". W52-3A

TERRELL, TEXAS—VAN DER HORST CORP.—OLEAN, N. Y.

Always Ready To Go

Hundreds of Cessna owners all over the country depend on the Authorized Cessna Service Stations listed below for their transportation needs—Authorized Cessna Service is their assurance that business planes are always ready to go, always in top condition for reliability, performance and comfort.

Every Cessna owner is guaranteed three important things by our factory-supervised Cessna Flat Rate Service:

(1) You get an accurately quoted price and time-required quotation based on hundreds of job studies covering virtually all maintenance needs.

(2) You get genuine Cessna parts and factory-trained workmanship.

(3) You save money and time and we stand behind every job for your fullest satisfaction.

To make the most of your Cessna's usefulness, visit the Authorized Cessna Service Stations listed below.

These progressive Cessna Authorized Service Shops offer flat-rate service.

Aircraft Sales Company
Meacham Field
Fort Worth, Texas

Aviation, Inc.
Municipal Airport
Tulsa, Oklahoma

Champ's Flying Service
Municipal Airport
El Paso, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Cruse Aviation, Inc.
Municipal Airport
Houston, Texas

Dal-Tex Aviation, Inc.
Highland Park Airport and Love Field
Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Howard Aero Service, Inc.
San Antonio International Airport
San Antonio, Texas

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
New Municipal Airport
Santa Fe, New Mexico

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

5-Place Utility–Single-Engine Thrift!

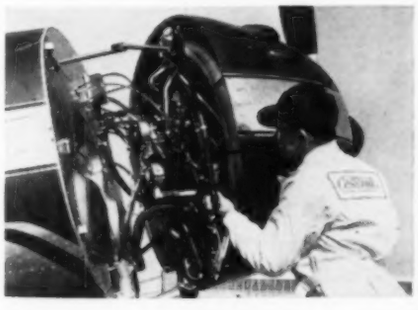
New Cessna 195 Offers Greatest Room, Luxury in Single-Engine Field . . . 12 All-New Features!

Fly it! Compare it! The one *and only* airplane that offers *both* 5-passenger convenience and single-engine economy—brilliant new Cessna 195! It's powerful! Cruises over 165 m.p.h.! Offers greater comfort than any other single-engine ship! Twelve new features including 50% increase in flap area, larger tail surfaces for easier control, smoother flight, new interior color combinations. For information, see nearest Cessna dealer (listed in yellow pages of phone book) or write CESSNA AIRCRAFT CO., DEPT. **FM-9,** WICHITA, KAN.

Cradled Comfort

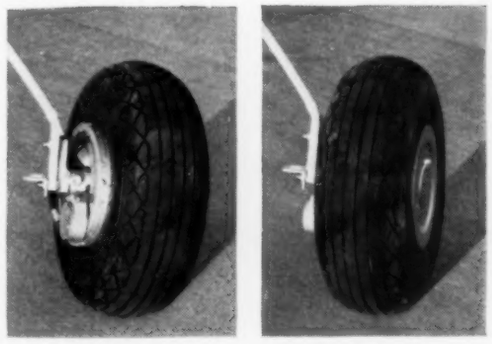
Relax in extra-soft foam rubber seats . . . stretch your legs out *full length* . . . enjoy complete comfort! Four fresh-air ventilators; a large thermostatically controlled heating system; entire cabin area is soundproofed. And for a smoother ride, you sit beneath the wing, out of the sun, with a "control tower" view of the scenery below.

Hinged Engine Saves Hours



Remove 2 bolts and the Cessna 195 engine swings out for immediate maintenance! You have a choice of two engines: a 300 H.P. Jacobs or a 275 H.P. Jacobs. Both powerful, economical, service-proved, and equipped with Dynafocal shock absorbers for smoother performance.

Cessna
AIRCRAFT COMPANY



Equipped with "Crosswind" Wheels

For safest, smoothest takeoffs and landings . . . standard equipment on the Cessna 195! Eliminates need for lining-up carefully on the runway during landings. Lets you take off easily, safely even when wind is at right angles to the runway!

4 GREAT CESSNAS 170 180 195 310 THE COMPLETE AIR FLEET FOR EVERY BUSINESS NEED

MARCH OF LIGHTPLANE PROGRESS was recalled recently when Bill Strohmeier, long-time aviation writer, took a new Piper Apache on a New England demonstration tour. Eighteen years ago, he made a similar New England tour for the old Taylor Aircraft Company in a 37-hp. Cub. On hand then and on hand recently to greet him in the Apache was Jack Phillips, sales manager for Wiggins Airways, Piper distributor, of Boston's Norwood Airport. Apache cruises over 170 mph., has two transmitters and four receivers and full instruments, and can fly on one engine.

TRAINING FOR SALES

(Continued from page 25)

D. Barnett, J. C. Wilson, J. T. Calhoun and Pink Jackson, all of the engineering department.

Some of the topics discussed are the following, with the speakers who participated in the courses: Security vs. Opportunity, by Frank Hedrick; Closing the Sale, by Richard C. Borden; Why Salesmen Succeed, by W. H. Balzerick; Beech Panorama, by Cliff Titus; Looking Behind the Scenes, by H. J. Agnew and D. C. Spillman; Developing Creative Imagination, by Paul Allen; Overcoming Objections, by Richard Borden and Allen Busse; Post Mortem Discussion of a Lost Sale, by Balzerick, and Sales Power of Advertising, by Phil McKnight. ★★★

Twin Bonanza

BONANZAS

New, Demonstrators
Used, Trade-Ins

Get

IMMEDIATE DELIVERY

of your

EXECUTIVE AIRCRAFT

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REMMERT-WERNER, Inc.

Lambert Field St. Louis, Mo.

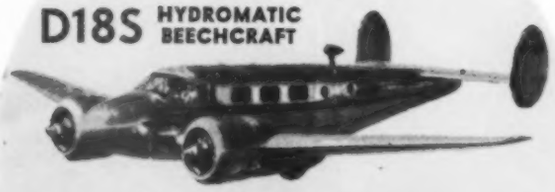
Registered Owners

C-47 CARGO, 1944. NTSO P&W engines, relicense. De-icers, hot air heat, dump chutes, 24 volt, wing modification, dual instrumentation. VHF, MHF, ADF, LF, ILS. $89,000.

DC-3 1942, NTSO engines. Janitrol, de-icers, Goodyear brakes, dump chutes, wing modification, 24 volt, 21 seat airline. Dual Collins omni, VHF, MHF, ADF, LF, ILS. $79,000.

Today's
Businessman's
Blueplate Special

D18S HYDROMATIC BEECHCRAFT



Your Choice of Three

All have hydromatics, nose tanks, de-icer boots, anti-icers, gear modification, VHF transmitters, VHF Receivers, Omnis, R89B ILS, ADF, markers, etc. One has Omni-Mag, RMI. Two have autopilots, gyrosyns. One has Sperry H-5 and F-3. All traded in on Super-92 DC-3, ready for immediate delivery at only

$46,000

Super-92 DC-3

New ship guarantee, complete 8000 hour overhaul, SUPER-92 engines, Collins radio, beautiful custom interior, 200 mph. All have the new Remmert-Werner exclusive large cabin and picture windows for eye level vision.

Watch for These
BLUE PLATE SPECIALS
Every Month

First flight views of the Boeing 707 jet transport show it in flight test at Seattle and over snow-covered Mt. Ranier. Its four Pratt & Whitney JT-3L jets are rated at 10,000 lbs. of thrust each. As a transport, it would seat 80 or more passengers, with 550-mph. cruising speed. It will gross about 190,000 lbs.
—(Boeing Photos.)

Boeing Jet Flight Tests

ACCELERATED development of the first United States jet transport is being pushed by Boeing Airplane Company at Seattle, with 15 hours and 46 minutes of flight test recorded during the first 8 days of an intensive program which began on July 15 with the big Boeing 707's first flight.

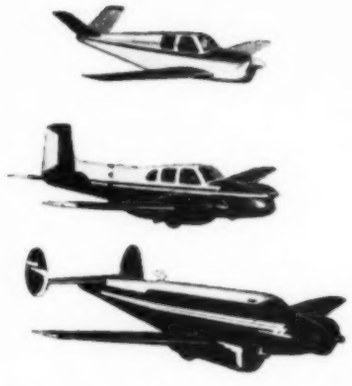
A. M. (Tex) Johnston, chief of flight test for Boeing, is in charge of the program, assisted by Richards L. Loesch, senior experimental test pilot.

A brief log of flight test activity during July includes the following:

July 15—Maiden flight, 1 hour, 24 minutes—Airborne from Renton Municipal Airport after a 2,100-foot run,

(Continued on page 46)

The man who is never at his desk



The young lady who answers the phone for this busy business executive must have a pretty frustrating job. Her boss is gone from the office most of the time. His work piles up in enormous stacks while he travels by time-consuming public transportation facilities. When he finally returns to the office he is swamped with work and spends his week-end working as usual to clear his desk before leaving on another business trip the following week.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

If you are confronted with this same problem the J. D. Reed Company of Houston, Texas has the solution for you. Our representative will be glad to demonstrate how you can travel further, cover more business commitments and still have 75% more time at your home office and more time at home with the family. Call the J. D. Reed Company for complete details without obligation.

J. D. REED CO., Inc.
SALES SERVICE
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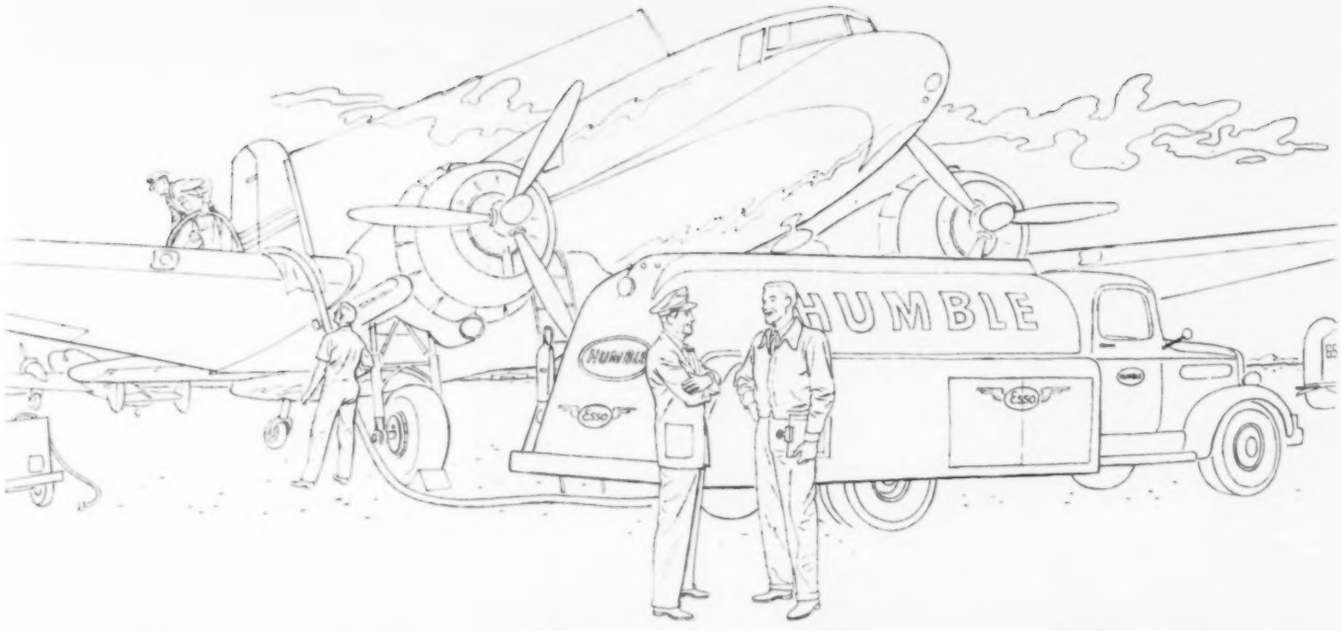
HOUSTON, TEXAS



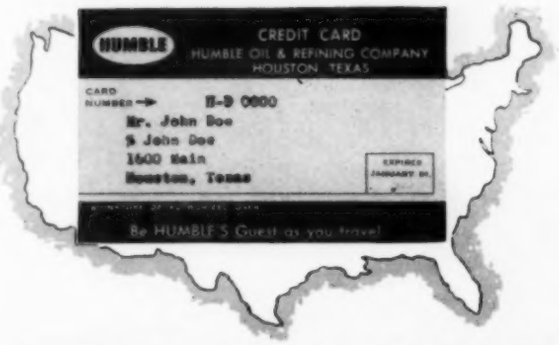
Preferred by pilots on Texas Skyways

Humble Esso Aviation Gasoline

Both pilots who fly for pleasure and those who fly for business have changed to Humble Esso aviation products in such increasing numbers that *Humble leads in commercial aviation gasoline sales in Texas.*

The reason? Humble Esso fuels and lubricants are dependable. They have been continuously improved by continuing studies of aviation requirements; they are products of the highest practical quality. Skyways or highways — stop for service under the Humble sign!

Use your Humble Esso Aviation Credit Card at more than 600 airports across the nation.



HUMBLE OIL & REFINING COMPANY

Narco now offers a great new Omni navigation package—the compact Omniplexer which joins the famous 8-channel Narco Omnigator and the most popular 4-channel Narco Superhomer to make your navigation easier and simpler.

Measuring only 6¼" wide by 3" high by 6⅝" deep, the Omniplexer embodies all the traditional Narco features of accuracy, reliability and easy readability on both inbound and outbound headings.

Used in conjunction with the Narco Simplexer, the Omniplexer gives you Omni navigation and 12-channel VHF communications with famous Narco "whistle-stop" tuning that puts you right on the desired frequency for simplex transmission without even looking at the tuning dial!

You can install the Omniplexer in your airplane with confidence because Narco has built more Omni systems for business and private planes than all other makes combined! See the Narco Omniplexer and other fine Narco equipment at your nearest Narco distributor or write for new brochure on the Omniplexer today.

Good news for SIMPLEXER owners

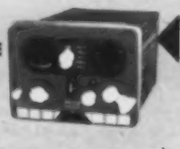
If you already have a Narco Simplexer, you can add the Omni navigation function merely by plugging the Omniplexer into your Simplexer which already incorporates a reception plug for this purpose. You'll find this combination ideal for basic navigation or as an excellent auxiliary piece of equipment.

***Omniplexer is priced at only* $195.00**

narco

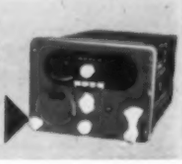
NATIONAL AERONAUTICAL CORPORATION
Ambler • Pennsylvania

NARCO ALSO MAKES THESE TWO GREAT OMNIS



OMNIGATOR—Exceptionally accurate Omni plus ILS localizer, VAR, 75 Mc marker. 8-channel transmitter.

SUPERHOMER—Compact, single-unit Omni; VHF receiver; 4-channel transmitter. 10½ pounds complete.



COPTER FORUM

(Continued from page 24)

Carlson, chief test pilot, Bell Aircraft Corporation's Helicopter Division, and to Ferdinand D. Moran, Civil Aeronautics Board examiner. The Captain William J. Kossler Award, honoring the memory of the late U. S. Coast Guard aviator, aeronautical engineer an dearly advocate of helicopters in Coast Guard operations, was presented to the U. S. Navy, with acceptance by Rear Admiral Clarence E. Ekstrom, for "greatest achievement in practical application or operation of rotary-wing aircraft, the value of which has been demonstrated in actual service during the preceding year." For "notable achievement in the advancement of rotary-wing aeronautics," Michael E. Gluhareff, chief engineer of Sikorsky Aircraft Corp., received the Dr. Alexander Klemin Award. This is a plaque established by Frank N. Piasecki, the manufacturer, to honor the memory of Dr. Klemin, eminent aeronautical engineer, educator, author and pioneer in rotary-wing aeronautics, who died in 1950. ★ ★ ★

SUPER 18 BEECHCRAFT

(Continued from page 17)

new installation uses jet stacks which discharge into cooling air troughs on each side of nacelle. Paddle-type propeller blade tips were experimented with but the production model Super 18 apparently is equipped with standard blades. Air-tight and otherwise improved wheel-well doors are used.

New squared wing tips have been installed which give more wing area—they appear to add several square feet of wing area — and reduce tip drag. Also, stall strips have been installed on the wing leading edge. The horizontal stabilizer angle of incidence has been changed about 1.5 degrees, now being only about one-half degree negative as compared to about 2 degrees negative on the D18S.

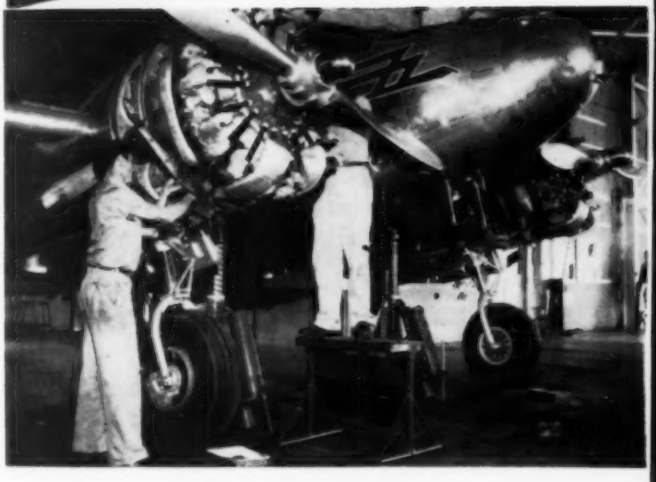
Detailed performance improvements await final certification of the production model. In general, the airplane has a new gross weight of 9,300 lbs., with an empty weight of about 6,150 lbs. including "average" radio, for a basic useful load of some 3,150 lbs. Cruising speeds are as follows:

	5,000 ft.	10,000 ft.
300 hp., 47.5 gph., mph.	207	215
260 hp., 40.6 gph., mph.	197	204
240 hp., 37.7 gph., mph.	191	198
200 hp., 32.6 gph., mph.	177	182

(Horsepower shown is for each engine and is based on METO and take-off rating of 450 hp. each at 2,300 rpm. ★ ★ ★

The Highest Standard of Achievement in Service

ALAMO AVIATION



As a Beechcraft distributor, we at Alamo Aviation feel a sense of obligation to assure you the best service your Beechcraft can have. Our tools and methods are factory-recommended. We use only factory approved parts and our mechanics are factory-trained.

The responsibility of servicing your Beechcraft should be entrusted to those who are best qualified to give it proper care. Your Beechcraft was designed to bring you the utmost in flying pleasure . . . and it deserves service of equal quality.

You have every right to expect superb performance from your Beechcraft. The best way to obtain it is to let ALAMO AVIATION assume the responsibility of servicing and maintaining your aircraft.

ALAMO AVIATION, INC.

Municipal Airport **San Antonio, Texas**

BEECHCRAFT DISTRIBUTOR

Qualified Service makes the FINEST *product* FINER

You can put your confidence in...

Certified Beechcraft Service

The Beechcraft owner can well take pride in the fact that he owns and flies one of the finest products of the Aviation Industry. He also has at his disposal the finest national service organization that is qualified by the Beechcraft factory to maintain all Beechcraft models in factory new condition.

At Certified Beechcraft Service Stations you will find skilled and efficient Beechcraft factory trained personnel, adequate equipment and facilities, factory authorized parts and accessories plus economical prices. Certified Beechcraft Service is an additional bonus you receive with the purchase of a Beechcraft.

AIRCRAFTCO, INC.
New Municipal Airport
Wichita, Kansas

AIRCRAFTSMEN, INC.
Will Rogers Field
Oklahoma City, Oklahoma

ALAMO AVIATION, INC.
Municipal Airport
San Antonio, Texas

ANDERSON AIR ACTIVITIES
General Mitchell Field, Milwaukee, Wisc.
Truax Field, Madison, Wisc.

ATLANTIC AVIATON CORP.
Teterboro Airport, (25 minutes from Times Square)
Teterboro, New Jersey
Logan Airport, East Boston, Mass.

ATLANTIC AVIATION SERVICE
New Castle County Airport, Wilmington, Delaware

BUTLER CO., AVIATION DIVISON
Municipal Airport, Chicago, Ill.

CURREY SANDERS AIRCRAFT CO., INC.
Downtown Municipal Airport, Shreveport, La.

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport, Albuquerque, New Mexico

GRAY AIRCRAFT SVC. CO., INC.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

HUNTER FLYING SERVICE, INC.
Hunter Field, Cedar Rapids, Iowa

ROD MORE AVIATION SERVICES
Cuddihy Field, P. O. Box 556,
Corpus Christi, Texas

OHIO AVIATION COMPANY
Dayton Municipal Airport, Vandalia, Ohio

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport, Indianapolis, Ind.

J. D. REED CO., INC.
Municipal Airport, Houston, Texas

TOPEKA AIRCRAFT SALES & SERVICE
Municipal Airport, Topeka, Kansas

TRADEWIND AIRPORT CORP.
Tradewind Airport, Amarillo, Texas

TULSAIR DISTRIBUTORS, INC.
Hangar 5, Municipal Airport, Tulsa, Oklahoma

WINGS, INCORPORATED
Wings Field, Ambler, Pennsylvania
Philadelphia International Airport, Philadelphia, Pa.

To obtain the best service for your Beechcraft visit the Certified Beechcraft Service Stations listed.

. . . going places

The BEECHCRAFT Twin-Bonanza is the new favorite with those who want to go faster with more comfort and more luxury. BEECHCRAFT quality is apparent from the first glance, and that's real assurance of extra value, the ultimate of air travel.

Travel is most restful in the big, six-passenger, roomy, extra-quiet cabin with its built-in visibility and all its stretch-out roominess... and you go when and where you want to go! Its *earning power* makes the new Twin-Bonanza a profitable investment in today's race for business expansion.

At full 6,000-pound gross load this newest twin-engine BEECHCRAFT has a cruising speed of 192 miles per hour at 10,000 feet, a rate of climb of 1,450 feet per minute, a service ceiling of 20,000 feet, a range of up to 1,088 miles, and outstanding single-engine performance.

Business leaders, like the military, have adopted this new Twin-Bonanza *as the 1954* personnel transport... it's a proved aircraft with a long-standing reputation for top performance. Investigate the Twin-Bonanza way of faster personal travel toward more business and more pleasure. See your BEECHCRAFT dealer or distributor, or write Beech Aircraft Corporation, Wichita, Kansas, U. S. A.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

BOEING JET

(Continued from page 39)

the airplane carried out low and medium altitude shakedown. General handling characteristics were investigated. Lateral controls, which bank the airplane, were tried out at low and medium speeds with flaps extended and retracted. The airplane was brought to the edge of a stall—what pilots term "approach stalls"—to test the transport's reaction and control at low airspeeds. The airplane landed at Boeing Field, Seattle.

July 17—Flight II, 2 hours, 25 minutes—Continuation of low and medium altitude airplane shakedown. On this flight, the airplane reached 27,300 feet altitude and 485 miles per hour true airspeed. Lateral control was again studied at higher speed. Air-conditioning and windshield heating were checked.

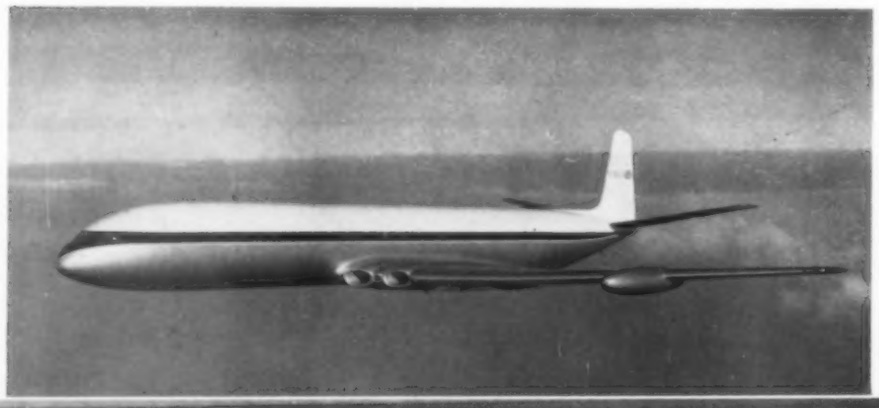
July 19—Flight III, 2 hours, 19 minutes—High altitude shakedown. The airplane proceeded to 42,000 feet. It reached a maximum speed of above Mach .8—550 miles per hour—at high altitude. Systems and control effectiveness were studied at high altitudes.

July 20—Flight IV, 1 hour, 49 minutes—Alternate means of operating certain components were tested. All alternate methods functioned satisfactorily; flaps were lowered manually to "fully down" position. A simulated "go-around" (a "go-around" is carried out after an airplane is on final approach and, for any reason, can't complete the landing) was carried out in a "very satisfactory" manner.

July 20—Flight V, 21 minutes—Low speed, low altitude test.

July 21—Flight VI, 3 hours, 55 minutes—After take-off, the 707 climbed to operational altitude at maximum climb power setting so that engine cooling and pressure data could be obtained. Sound level measurements were taken in the cabin. Engines were shut off and re-started at operational altitudes in a completely normal manner. Normal descents, at from 5,000 to 6,000 feet per minute, were made from operational altitude with "air-brakes" extended on the wings and landing gear down. These descents were made to test tank vents. Performance tests were carried out with a "trailing bomb" static source added to the airspeed indicator system to obtain a calibration of the airplane's airspeed measuring system.

July 22—Flight VII, 3 hours, 33 minutes—Full stall investigated. A "cold soak" test was made at high altitude to determine if all parts of the airplane functioned when they were subjected to the low temperatures present at the height at which the airplane will normally fly. A brief check was made of the ability of the 707 to hold formation with the B-52 as it would in aerial refueling. ★★★



FIRST FLIGHT OF THE COMET 3, de Havilland Aircraft's long-range, large-capacity development of the Comet 1 and 2 jet airliners, is pictured at Hatfield, England. The Comet 3, with 58 first-class passengers, is expected to have a 2,600-mile range. It is powered with four Rolls-Royce Avon jets, each rated at 10,000 lbs. of thrust. The Comet 3 is not expected to enter scheduled service until 1957.

—(de Havilland Photos.)

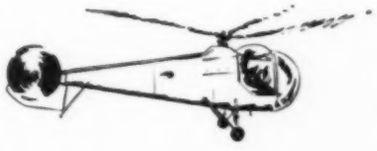
Why do most types of 'copters fly with Lycoming-built engines?

Lycoming-powered Sikorsky S-58 Anti-Submarine 'Copter*

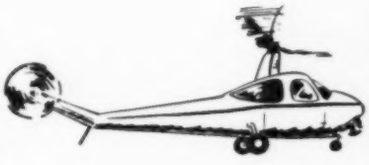
Lycoming-powered Piasecki H-21 Materiel and Troop Transport*

Lycoming-powered Kaman HTK-1 Military Trainer

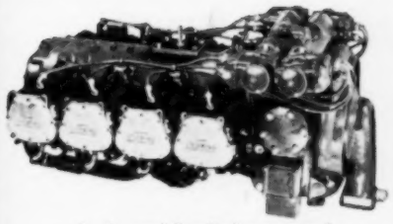
Lycoming-powered Doman L-Z5 General Utility 'Copter



Lycoming-powered Brantly Model B-2 Personal 2-place 'Copter



Lycoming-powered Glenview FlyRide Personal 2-place 'Copter



4-, 6-, and 8-cylinder opposed air-cooled engines.

*7- and 9-cylinder radial air-cooled engines.**

LYCOMING TURBINE ENGINES

Still "under wraps," being developed for the Military. Lycoming's new "pioneers" that promise greater efficiency, greater economy, more brilliant performance than any helicopter engines ever before developed.

*Wright-Cyclone engine, built by Lycoming under license from Curtiss-Wright Corporation, Wright Aeronautical Division.

The answer is simple: Lycoming builds more types of power plants designed for varied types of helicopters than any other engine manufacturer. Some users are shown above.

Since 1940—when Lycoming powered the pioneering Vought-Sikorsky 300—Lycoming has produced engines ranging from 135 to 1500 horsepower. And they have been designed for horizontal, angular, and vertical mounting.

Look to Lycoming for engines that give dependable performance and long life. For further information, write on your letterhead for Lycoming's free booklet titled "Helicopter Power Plants."

FOR RESEARCH • FOR PRECISION PRODUCTION

LOOK TO **Lycoming**

DIVISION OF AVCO STRATFORD, CONN.
Manufacturing plants in Stratford, Conn. and Williamsport, Pa.

. . . the CONTINENTAL E-185 or the CONTINENTAL E-225

Yours in the NEW

Beechcraft

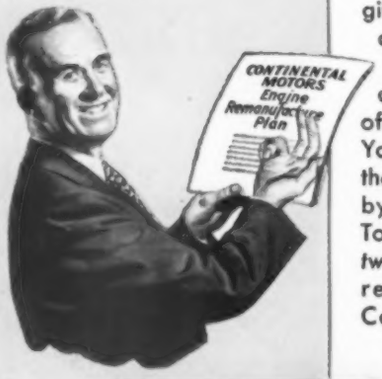
MODEL E35

It embodies wider utility than ever before, the newest Beechcraft E35, and one big reason is that it *gives you your choice of power.* It comes equipped with either of two outstanding engines, depending on the performance characteristics you desire . . . The standard E35, powered, as for several years past, by the 205-hp E-185, gives you 175 mph, with the thorough dependability you expect of Continental power. For speeds up to 9 miles higher, along with higher ceiling and faster rate of climb, specify the Continental E-225. You can still obtain the cruising range of the standard power plant, when you wish, by utilizing less of the engine's output . . . Today's fine Bonanzas, with choice between *two proven engines,* are another strong reason for choosing a plane with Continental power.

. . .

AIRCRAFT ENGINE REMANUFACTURING SERVICE SAVES YOU TIME AND MONEY

Continental's Remanufacturing Plan, now several years old and firmly established, is another good reason for choosing an airplane with Continental power. Available through 125 master distributors with dealers at practically all airports, this exchange service gives you a new factory-remanufactured engine—back to zero hours, and with factory engine guarantee—at a low fixed cost, with virtually no dead time.



Continental Motors Corporation
Aircraft Engine Division
MUSKEGON, MICHIGAN

JUST AMONG OURSELVES

(Continued from page 9)

services they'd have them running out of their ears. Why the Pentagon brass can't see it is beyond explanation.

GOOD NEWS FOR MOSCOW

WE recently bumped into an old mechanic friend of long standing who had deserted the ranks of general airplane maintenance and gone into a factory. His 25 years of experience as a competent A & E mechanic eminently qualified him for supervisory work despite the fact he did not have previous factory experience. But he preferred to go into an ordinary non-supervisory job to learn what he could and to build up seniority.

Our interview in this interesting case turned up the following facts:

1. He didn't want to join the union but "had to" in order to avoid trouble.

2. He is enthusiastic about his new work in a new field of aviation but can not understand why most of his fellow workers are not enthusiastic. "They are clock watchers," he complained, "and don't seem to realize human life and national security are all tied up in what we do each day."

3. He cannot understand how so many people can do so little work, that very few are worth even one-half what they are being paid.

4. The cost of aeronautical products to Uncle Sam and to the commercial consumer will continue exhorbitant until we can reduce waste by firing inefficient people — in other words a more competitive labor market.

5. Unions are too interested in power and not interested enough in improving individual worker's ability and productivity.

At the wind-up of the discussion, we both agreed he was born thirty years too soon. His thinking and worries are old-fashioned. Too bad there aren't more like him! ★ ★ ★

COPTER OPERATIONS

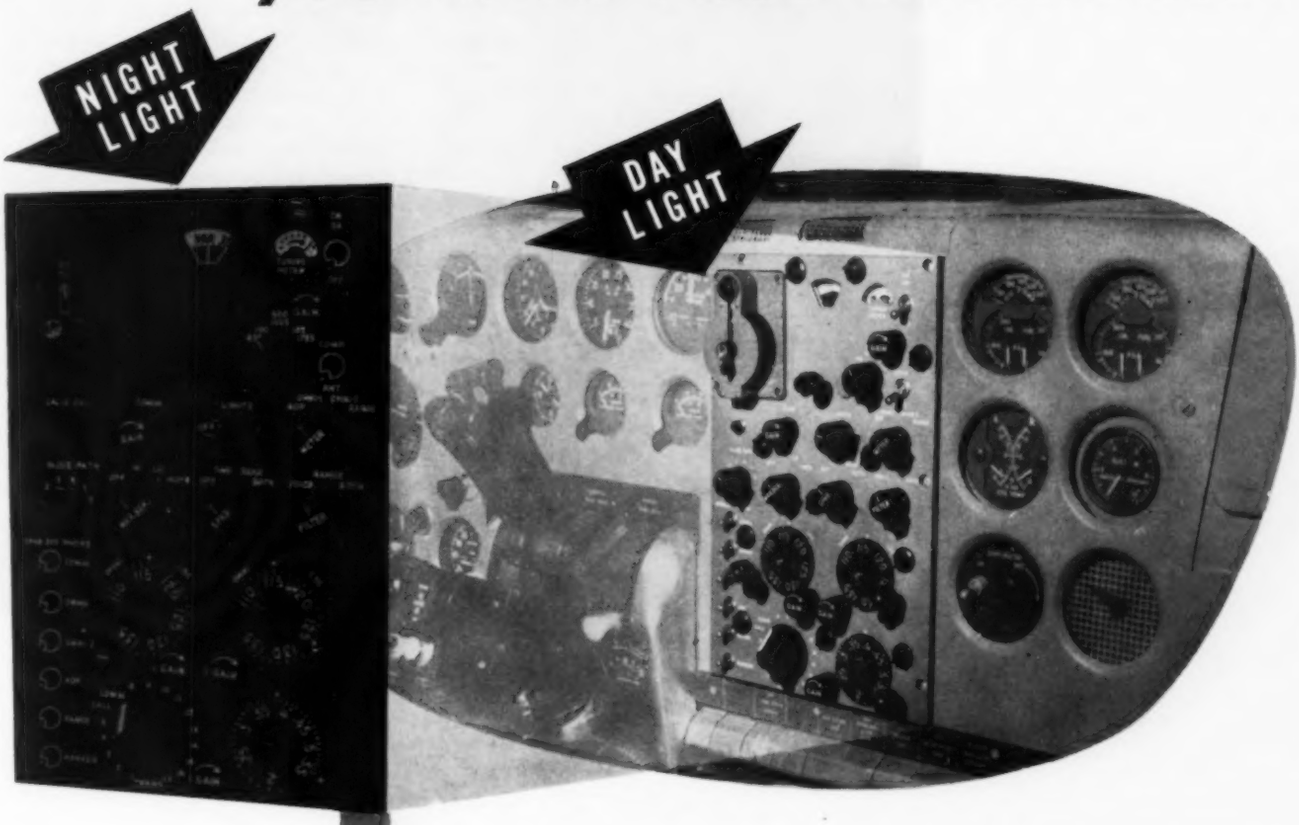
(Continued from page 22)

of them are vacant lots transformed into heliports by surrounding them with a fence 150 ft. in diameter and 3 ft. high with a gate for the messengers' use. Signs designating them as heliports are provided in addition to wind direction indicators.

The heliport located atop the thirteen-story post office building has a landing mat 130 x 180 feet in size. It is to our advantage that the roof was stressed for autogyro landings several decades ago, and it provides us with

Day or night, you're in FULL COMMAND!

A Custom Installation by Aircraftsmen



Let Aircraftsmen's Experienced Experts Make a Complete Custom-Engineered Radio Installation Now in Your Twin-Bonanza--Also For Other Types Of Executive Aircraft!

...When Your Twin-Bonanza is Completely Radio Equipped -- Installed by Skilled Hands at Aircraftsmen, Inc.

THERE IT IS at a glance . . . easy-to-read indicators for your Communications, ADF, Panel Lights, Tuning Meter Selector, Glide Path, Marker Audio Selector, Speaker Selector, Range Filter, Audio Selectors, Dual Omni Receivers, Transmitter Selector, and Range Receiver. This special night-light feature of Aircraftsmen's radio panel makes night flying safer and easier for the Twin-Bonanza pilot. Compare and you will see!

Let Aircraftsmen's highly experienced radio experts make a complete custom-engineered radio installation in your Twin-Bonanza, as they have in ten others this year. Installations are made on a flat rate basis . . . write today for a quotation on your requirements.

Air Frame — Class 1 and 2 • Power Plant — Class 1 • Accessories — Class 1 and 2

BONANZA OWNERS: Aircraftsmen, Inc., will furnish upon request descriptive literature on ACCESSORIES . . . specially designed map and thermos cases, curtains, visors, breather oil separators, aileron trim controls, and ten-gallon auxiliary fuel tanks. Qualified men with years of experience are at your service for installation and repair.

CAA Approved Repair Station 289

Aircraftsmen Inc.

Box 2516 • MElrose 8-6338 • Will Rogers Field • Okla. City

an excellent terminal at the post office. Adjacent to our hangar at the airport are six landing pads where the helicopters are pre-flighted prior to taxiing over to the airport terminal for their daily assignment. Helicopter taxiing is done at about 10 feet above the ground following the same rules and procedures as the fixed-wing aircraft.

The volume of mail carried by helicopters fluctuates by season as well as by days. Holiday periods increase our payload materially.

The out-bound loads vary up to about 400 pounds while the in-bound loads can run in excess of 500 pounds. Fuel consumption in flight lightens the helicopter by about one pound per minute which accounts for the increase in payload on the in-bound flights. In one peak month of operation, our mail payload exceeded 324,000 pounds. Based on approximately 23 days of operation per month, this means that each helicopter carried almost 3,000 pounds of mail per day. We have now flown more than a million and one half miles and have carried almost 14 million pounds of mail.

Records from our Maintenance Department show our average revenue hours of use per day per aircraft to be about 3:19 hours. This is not a true picture of our utilization; however, for based 5½ days per week — or 286 days per year — the helicopters average more than four hours per flying day. Since one ship is always in overhaul, the five ships on flight status actually average more than five hours of flight per day.

Over the past five years our percentage of performance has averaged almost 96%, which again is the highest performance factor for any scheduled helicopter service, 1953 being the best year at 97.2%. The monthly trend of our percentage of performance is influenced by certain months of rugged Chicago weather. We fly in winds of 50 mph. with gusts up to 60. Our problem is not primarily one of safety but of maintaining schedules in these high winds. Our Civil Aeronautics Administration approved weather minimums are a 300-ft. ceiling and a ½-mile forward visibility for our entire system, the only exception being a 500-ft. ceiling in the area surrounding the Chicago post office in order to

Stop for Service!

NATIONAL AERO SERVICE, INC.

at Chicago's Midway Airport

- Specializing in 24-hr. around-the-clock transient services for executive transports.
- Careful, courteous, alert know-how by a uniformed staff.
- Complete line equipment for rapid servicing of Convair, Douglas, Lockheed, Beechcraft, Aero Commander and all other types of business planes. Our own hard-stand is your private aircraft parking ramp — always lighted and guarded.

- New fleet of station wagons for your passengers and crews. Rental cars and taxicabs at our door. Nearby caterer provides hot and cold lunches for airlines and business planes.
- New and modern air-conditioned offices and lounge with air-conditioned private quarters for pilots desiring between-flight nap, shower, shave or just relaxation and television.

Aero Commander Distributor

Next time you're in Chicago, stop at Midway with National Aero Service. We appreciate your business and will work to earn your patronage. Operated by business plane users for flying businessmen. O. B. Callan, General Manager.

NATIONAL AERO SERVICE, INC.

AND AFFILIATED COMPANIES

National Aero Sales Corp. **Bohling Aircraft Corp.**

5320 West 63rd St., Midway Airport, Chicago, Ill.

compensate for the 238-ft. altitude of the post office roof heliport.

In the application for renewal of our certificate, we have proposed to extend our present routes considerably, thereby servicing more communities and increasing air mail revenues. We also have applied for permission to carry passengers in this area.

Operating Costs

The operating cost of helicopters is a complex and variable subject which can be influenced by the operator and by the equipment as sold by the manufacturer.

The operator can best effect reduction in cost through increased utilization of equipment. For example, operating one small helicopter for 1,000 hours per year produces direct operating costs of about $35 to $40 per hour. This same helicopter, being operated only 300 hours per year results in hourly direct operating costs of about $100. This is caused by certain costs of commercial helicopter operation such as depreciation, pilot and mechanics salaries, and insurance which are fixed costs regardless of hours flown. It thus logically follows that the greater the number of hours flown per year, the less the hourly cost will be.

One of the benefits from scheduled helicopter mail service to the helicopter industry is the accurate reporting of operational and cost statistics to the Civil Aeronautics Board. The Civil Aeronautics Board has a Uniform System of Accounts for Air Carriers, as set forth in the Code of Federal Regulations, Title 14, Civil Aviation. This system provides for uniform cost accounting of the various direct and indirect costs of the carriers. We are primarily interested here with the helicopter or direct operating expenses. We might mention, however, that the indirect expenses of our service constitute about 40% of the total cost of operation. The direct operating expenses are divided into three categories, as follows:

1. *5100 Account Series.* This account is entitled "Flight Operations" and includes gas and oil, pilot salaries, insurance on flight equipment and other expenses which are incurred in flight.

2. *5200 Account Series.* Direct Maintenance covers the maintenance of the flight equipment and the accounts in this group are designed to record direct expenses applicable to maintenance, repair, and overhaul of property and equipment used in flight operations. This includes labor, material, and transportation charges in-

An Invitation To
AERODYNAMICISTS

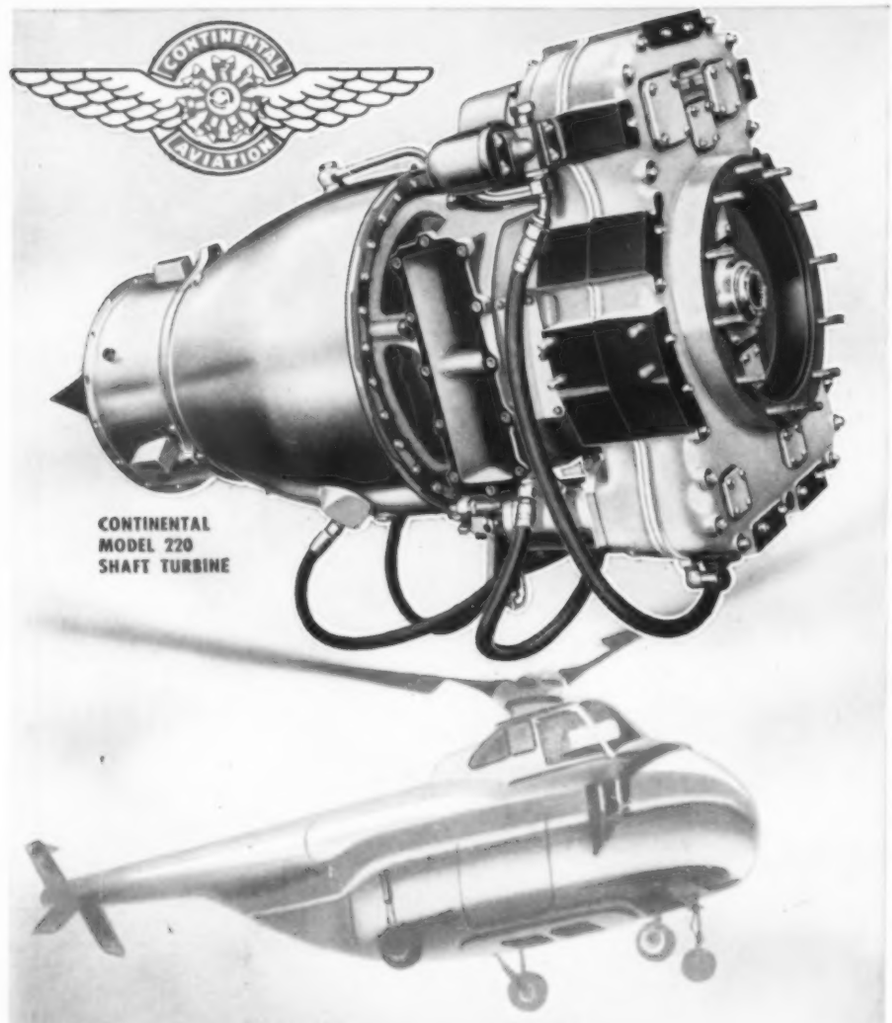
You may well be one of a select group of men intently interested in developing tomorrow's jet fighters . . . special reconnaisance aircraft . . . jet bombers and transports. The Aircraft Division of Fairchild offers a genuine creative opportunity to such men.

New concepts of flight for the jet era . . . as well as engineering advances on the world-renowned C-119 Flying Boxcar and soon-to-be-produced C-123 Assault Transport are coming from Fairchild. Diversified, stimulating assignments like these increase the inventive challenge to Fairchild's team of qualified aerodynamicists.

Gracious country living only minutes away from urban Baltimore or Washington . . . paid pension plan . . . an excellent salary with paid vacations . . . ideal working conditions . . . generous health, hospitalization and life insurance . . . and the many other benefits of a progressive company add to the pleasure of working with Fairchild.

You'll be investing wisely in a secure future if you take time today to write to Walter Tydon, Chief Engineer, outlining your qualifications. Your correspondence will be kept in strict confidence, of course.

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD
Aircraft Division
HAGERSTOWN, MARYLAND



Jet power
FOR THE AIR AGE

Continental, a great name in power, offers advanced development and modern manufacture to serve those requiring turbine power plants for helicopters, fixed wing aircraft, or other applications. If you manufacture equipment with a present or a prospective use for turbines —shaft power, air generators or jets— discuss your engine problems with C.A.E.

CONTINENTAL AVIATION & ENGINEERING CORPORATION
1500 ALGONQUIN AVE., DETROIT 15, MICHIGAN
SUBSIDIARY OF CONTINENTAL MOTORS CORPORATION

curred when the work is sub-contracted.

3. *5900 Account Series.* This account is designed to accumulate the charges of depreciation of flight equipment.

The flight operations account comprises about 38% of the total of the aircraft flight expense. Of the remainder, maintenance accounts for 44%, and depreciation accounts for about 18%. The engine overhaul and helicopter spare parts cost is frequently considered a major cost factor. Actually these are only about 15% of the total operating costs.

Our costs of flight operations in 1953 included:

	Per Flight Hr.
Pilot Salaries	$ 8.34
Gas and Oil	3.03
Insurance	2.21
Total	$13.58

Maintenance costs included:

	Per Flight Hr.
Labor	$ 8.69
Airframe and Rotor Spares	5.76
Engine Parts and Outside Labor	2.13
Total	$16.58

The three depreciation costs (5 years with no residual) were:

	Per Flight Hr.
Aircraft	$ 2.20
Engine	1.03
All Other (Rotor)	4.32
Total	$ 7.55

Thus the total operating cost attributed to HAS flight operations last year averaged $37.71 per flight hour.

The operator can be influential in the costs that he incurs by considering the following:

1. Obtaining maximum utilization.
2. Record of safety for insurance costs.
3. Maintenance program.
4. Close control of overhead.

The helicopter service is basically set up because of the time saving it offers and it is difficult to place values on this time. As mentioned earlier, our service expedites delivery of an air mail letter by from six to thirty-six hours. Mailing this letter costs the standard six cents per ounce, yet, of this six cents, only 5% or .0037 cents is actually applied to the helicopter portion of the trip.

A helicopter is a dynamic piece of machinery subject to fatigue, and the manufacturer spends considerable money and effort to develop and test the fatigue limitations of his helicopter. Current programs throughout the

helicopter industry for development and testing cost millions of dollars per year. Yet, the final importance is what the machine will do after actual extended service. The Chicago helicopter mail service costs the government about $500,000 per year. For this figure our six high flight-time helicopters have pioneered in determining the ultimate maintenance life of the helicopter in addition to their prime function of carrying the mail.

The logical outgrowth of this is the addition of passenger service which has already begun in New York and Belgium, and may rapidly spread throughout the nation before long. ★ ★ ★

DON VEST'S OPERATION

(Continued from page 19)

dope room. A large stockroom filled with a bewildering array of supplies from tiny cotter keys to complete wings and fuselages completes the repair equipment.

The business executive or sportsman pilot who wishes to buy, sell or swap an airplane will find the largest selection of used aircraft in the country on the sales line. The Vest Aircraft Company owns all the planes offered for sale. An airplane purchased there will be delivered anywhere in the U. S. for a flat fee of fifty dollars, regardless of type or size. A special sales policy is offered operators across the country whereby they can sell a Vest airplane locally. Procedure is to wire the fifty dollar delivery fee, obtained from the prospective purchaser, to Sky Ranch. The plane will be delivered promptly; the operator's ten per cent fee is clear, and is mailed upon receipt of the check for the plane.

Charter service at Sky Ranch is exceptional in that emergency group transportation is provided anywhere in the western hemisphere. Bonanzas are used for small parties, while Aero Commanders are used for larger numbers. Directed by Everette Hogan, flying master with years of management experience, the flight operations department is maintained on its toes ready for flight at a moment's notice. Proficient instrument pilots are on daily duty.

Rent-a-plane service is open to pilots for any occasion. Offered is a choice of single-place, two-place or four-place planes. Student pilot instructions, commercial ratings, ground school and instrument ratings are part of the flying school curricula.

Other flying activities include aerial photography, timber surveys, passenger hops and flying clubs. The cheerful knotty pine lounge is a favorite rendezvous for airmen. ★ ★ ★

INVITATION TO CONVERSATION

One day soon I'll be at your office to tell you about our complete aircraft interior and exterior decorating service.

I'd like to talk with you about planning the design of your new interior and paint scheme around your company's colors and insignia.

I'll call you when I arrive in town.

Sincerely yours,

Dorthe Anne Martindell

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MEACHAM FIELD

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$350,000 AIRPORT HOTEL PROJECT FOR PHOENIX, ARIZONA, is this swank 42-unit Sky Riders resort now being built at Sky Harbor across parking lot from the terminal building. Note large swimming pool. Features are designed to appeal to transient fliers and airline passengers. They include absolute soundproofing to wall out aircraft noise, direct telephones to airport offices, refrigerated air conditioning, television in every room and other arrangements. Developers include Maurice D. Brown, Phoenix attorney; Louis and Herman Chanen and A. T. LaPrade, Jr. Brown and Herman Chanen are partners in M. D. Brown Enterprises, Inc., contractors. The hotel was designed by R. C. Qvale and Associates of Los Angeles.

Questions and Answers for Airport Operators

Memo from an Airport Manager's Wife

QUESTION: This may not be exactly the place for a lady to speak up since most of your questions undoubtedly come from the males. Nevertheless, I've heard my husband quote your answers several times and what is good enough for him is good enough for me. You see, I'm an airport manager's wife. That's my problem. I could stop there and several hundred wives in the same category could fill in the rest of this letter.

I married the guy under the impression that here was a passably good-looking character with two good suits and a romantic, unusual sort of occupation. We were bound to be thrown with interesting people and get a chance to do a lot of gadding around. My father always complained that city employes worked short hours, took off Saturdays, Sundays, holidays, circus days, election days and most any other day with a "y" in it. My father evidently didn't know about airport managers.

Dinner is ready at seven. If I get to serve it by eight-thirty it's par for the course. Sometimes at nine-thirty he calls up to tell me he forgot he had to go to a meeting and wouldn't be home for dinner. Early in our married life, when I didn't hear from him at all, I would call the tower and tell the operator to try to find him and tell him to come home, all was forgiven. I knew that if anything happened to delay him, the operator would know it and tell me. Control tower operators always seem to know more about what's going on than anyone else on the airport.

Then there are the nights when he gets home at five-thirty and I haven't even got my hair up. I hurry through dinner preparations and we sit down in peace to a hot meal. Half way through the soup the phone rings and he comes back to the table all aglow. Here's the conversation:

"Leave this stuff set, Baby, and get your best rags on. We gotta go down to the hotel for a few drinks. We'll eat somewhere later. Did you iron that new Arrow shirt of mine?"

"Why?"

"Because I want to wear it, silly."

"Not the shirt. The rush. Why?"

"Buck's in town."

"Who's Buck?"

"Buck? Why, you know Buck. You met him at the Norman Conference two-three years ago. He's airport manager at Hell's Corners or Johnson's Grove. I forget which."

There you have it. Instead of one airport manager, I get two for the evening. So I throw things on and fix my face. He's been standing in the hall waiting ten minutes for me. When he sees me coming down the stairs, he picks up the phone and pretty soon I hear him asking the weather bureau about the prospects for the next few hours. When he has finally satisfied himself that for the evening there is no forecastable danger of the airport being washed away in a cloudburst, buried in a sandstorm, lost in the snow or blown into the next county by gales, he hangs up. He has apparently no political connections in the next county. With my hand on the door knob he dials another number and gets somebody named Clem. In minute detail he tells Clem where he'll be, hotel and room number. Clem will call him if he is needed for any of the aforementioned catastrophes or a more trivial emergency. Then we can go to the hotel. We meet Buck whom I have never seen before, I can assure you. He pumps my hand and gives me a kiss and shouts: "Martha, Martha, it's

WE GET AROUND, writes Major William J. Lookadoo, who arrived last month on a new assignment to a Pacific base to find this pretty gal all bundled up in the June issue of our magazine. Lookadoo says it made him feel right at home. So he got her to pose and sent us this Brownie portrait.

LARGEST NBAA CONVENTION in history of the National Business Aircraft Association is being planned for Oct. 27-29 in Dallas by this committee, headed by Al Harting of Southwest Airmotive, who took the picture and is general chairman. Seated, left to right, are Thiel Sharpe, Collins Radio; George E. Haddaway, FLIGHT MAGAZINE; and Herrol Bellomy, Temco Aircraft. Standing in the same order are Jim Fuller, Bell Aircraft; Jack Kemp, aviation public relations man, and Tom Lombardo, Temco.

sure good to see you. Martha, do you remember that time at the Minneapolis convention? Do you, Martha?" My name isn't Martha. It is Sally.

The evening will be all right barring the interruptions caused by my husband making a few calls on the phone. Buck is good people and so is my husband. When Buck got back home he sent me a lovely blouse from Juarez he picked up on his trip.

When we start out for a show or to play bridge it's the same thing. But what has always gotten me was to wake up in the middle of the night and for assurance that the world was right, reach over to his side of the bed only to touch nothing. It gives one an odd feeling. I listen and if I hear no noise around the house I look out the window and check the weather. In the morning I find out that the lights took a powder and the electrician couldn't be found or some dim foreboding of trouble had robbed him of his sleep and he had gone prowling the airport. Once it was a horse reported on the north end of the north-south runway by a transient pilot. He didn't bring even a halter home with him.

When we go out to spend an evening with a crowd of people some blonde is bound to say, "You must have a very interesting job." I usually don't see him for hours after that. It's a good thing I'm not a jealous woman. I'll admit I was worried for awhile until I found out Compass Rose was a what not a "who." I worried, too, about all the good-looking gals he'd be thrown with, hostesses, traveling widows, local sightseers and the rest. He's lived through seven years of that kind of temptation without apparently straying. So I guess that will be all right.

His irregular hours are what bother me. Sundays he likes to eat dinner at the airport. One night a week it's council meeting. Then there are other meetings. I've talked to him about it but it does no good. When he first took over the management of the field his organization wasn't strong and I realized he had to get his men trained before he would be free of some of the 24-hour worries. They are trained now and he has a lot of faith in them but he still lives by an irregular clock and that makes the wrist watch he gave me for Christmas more ornamental than useful.

Tell me. Is the situation possible of correction?

ANSWER: Sally, we'll bet he's home more often on time now than he was at first. You've had so much of irregular hours that you don't realize the situation has been bettered. Actually an airport manager, if he is really interested in his work, doesn't go by any clock. Surely, he's late for dinner. He may spend the afternoon in a conference that gets nowhere for three hours and breaks up to reconvene for one quick one in the lounge — but he gets more agreement worked out over the third drink than he has all afternoon. Or something may come up or happen at the tag end of the day that makes him feel he should get it straightened out before he leaves.

An airport manager who really knows what is going on at his airport is usually one who makes it a point to drop around occasionally at odd hours of the night or on Sundays. An

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SEEN AT RECENT ADMA MID-YEAR MEETING AT ESTES PARK, COLORADO, were Larry Zygmunt of Detroit, president of ADMA, and four distinguished guests of the group. Left to right are Zygmunt; E. T. Peabody, General Motors air transport general manager, Detroit, who discussed business aircraft operation needs; W. T. Piper, the manufacturer; Leighton Collins, editor and publisher of Air Facts, who spoke on "Avenues of Progress," and Frank Martin, Cessna Aircraft Company sales manager.

airport never really goes to bed.

There are airport managers who keep pretty regular hours, we know. It can be done, but we've never understood why it was so important to do that. We remember a busy airport we managed once. Our wife and boys spent many an odd hour there and enjoyed every minute of it. One midnight every light in our town went out. We drove nine miles through a darkened town and through a wholesale district where the power failure set off every burglar alarm and into the airport. Our wife had a handful of candles for the ticket counters and the restaurant counter. A man we hardly knew showed up with a generator on a pickup truck and three big flood lights. We put out flares and all our schedules operated.

And she hasn't forgotten the Sunday night of the Pearl Harbor attack.

We hope you'll pardon those personal experiences but please remember that an airport manager has a 24-hour responsibility seven days a week and it can be made easy for him or it can be made hard for him. You want him to do the best job he can do in the way he considers the best for him in the light of his thinking. ★★★

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Fourth Attempt Wins Women's Race

MRS. Ruth Deerman and Mrs. Ruby Hayes of El Paso, Texas, were declared winners of the Eighth Annual All-Woman Transcontinental Air Race, Long Beach, Calif., to Knoxville, Tenn., held July 3-6.

They flew "Cotton Clipper, Jr.," a Cessna 140 owned by Mrs. Deerman. This was the fourth attempt the two women had made together to enter the winners' circle. They collected a total of $1,075 in cash, a large silver tray perpetual trophy, a "for-keeps" trophy, and will have their names inscribed on another large perpetual trophy now on display in the National Air Museum, Smithsonian Institute.

Second place winners were Mrs. Frances Bera and her sister, Mrs. Helen Albani, both of Inglewood, Calif. Mrs. Bera was winner of last year's race, and flew co-pilot with Mrs. Claire Walters in 1951 to win that year's race. Mrs. Bera and Mrs. Albani flew a Cessna 170 and collected a total of $675 in cash, a perpetual trophy and a "for-keeps" trophy.

Third place winners were Gloria Smith of Phoenix, Arizona, and De Thurmond of Long Beach, Calif. They flew a Beech Bonanza and won $450 and a trophy.

Fourth place went to Mrs. Ruth Thomas and Mrs. "Bibs" Camp of Knoxville, Tenn., in a Cessna 120. They collected $260 and a trophy. Fifth place winners were Miss Lindy Boyes of Oakland, Calif., and Mrs. Margaret Callaway of Fort Worth, Texas., in a Cessna 140. They won $150 and a trophy.

This was the biggest race in the series. Fifty-one lightplanes of 300 hp. or less took off from Long Beach, and 46 were still qualified at the finish. Mechanical trouble forced two out of the race; two planes stayed overnight at non-designated airports, and one failed to meet the race deadline.

The race was conducted by the Ninety-Nines, organization of licensed women pilots.

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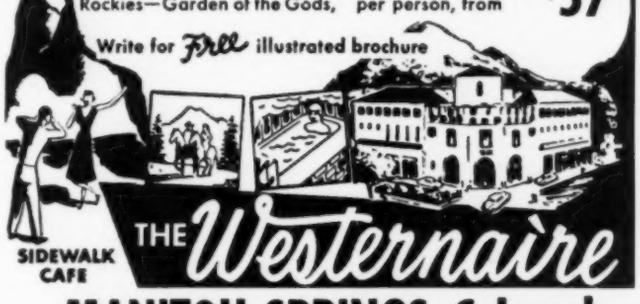

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AIR REPORT

(Continued from page 33)

ing edge of the wing to prevent burble at slow speeds. Greatly shortened take-off was demonstrated. It was said the Grumman's standard 2,000-lb. bomb load can be increased to 5,000 lbs. with the use of the boundary layer control system.

WILLIAM M. (ROBBIE) ROBERTSON, veteran airman and CAA Second Region administrator from 1942 to 1953, has retired from CAA after 26 years of service and accepted a position of vice president and director of the Embry-Riddle Company's aviation interests at Miami, Florida.

Robertson learned to fly and was commissioned a second lieutenant during World War I. Returning to civilian life in St. Louis, he was one of the early day pilots to fly from Lambert Field and was the first pilot to flight test the original Curtiss Robin. In 1929, following barnstorming and flight instruction work as a part time aviator, he joined the old Bureau of Air Commerce, forerunner of CAA, and became aeronautical inspector working out of Cleveland, Ohio. His duties included official handling of the National Air Races between 1929-1939.

When the civilian pilot training program was undertaken experimentally in 1939, Robertson was chosen to establish the program in 13 colleges. He personally checked and approved all instructors in the original CPT program, developing the process that resulted in the instructors rating now in use. Later that year, he moved to the CAA Second Region at Atlanta, Georgia, as chief of general inspection, becoming regional administrator after Pearl Harbor. He held this post until the Second and Fourth Regions were combined in 1953, when he moved to Ft. Worth as special adviser to the regional administrator until his retirement.

Married since 1924, Robertson has two married sons, one with Lockheed in Atlanta and the other following in the footsteps of his famous father by serving in the U. S. Air Force.

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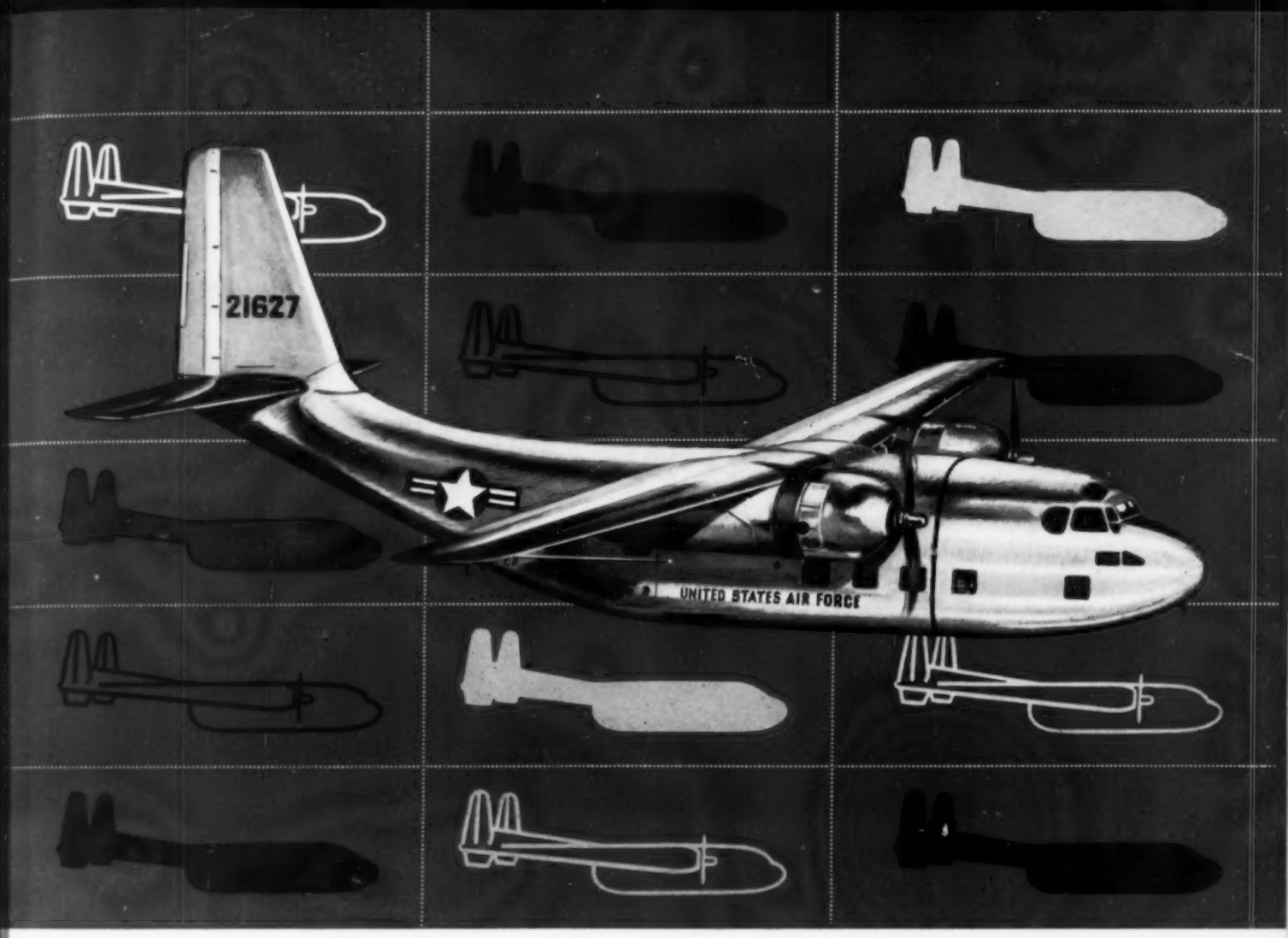

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